

International Development Research Centre

BRIEFING BOOK

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Canada

**The
International Development
Research Centre

Canada**

October 2007

International Development Research Centre

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Executive Summary

Canada's International Development Research Centre (IDRC, the Centre) is one of the world's leading institutions in the generation and application of new knowledge to meet the challenges facing developing countries. IDRC funds applied research by researchers from developing countries on the problems they identify as crucial to their communities. It also provides technical support to those researchers.

IDRC builds local capacity in developing countries to undertake research and create innovations, believing that people from developing countries must take the lead in producing and applying knowledge for the benefit of their own communities. IDRC also fosters alliances and knowledge sharing between scientific, academic, and development communities in Canada and developing countries. IDRC's core mission supports Canada's policy goals and strengthens Canadian research and development support for international development.

IDRC is a Crown corporation. As a member of Canada's international policy community, the Centre works collaboratively with a number of federal government departments, especially the Department of Foreign Affairs and International Trade and the Canadian International Development Agency (CIDA). Guided by an international Board of Governors, IDRC reports to Parliament through the Minister of Foreign Affairs. The Centre's status as a Crown corporation has been beneficial to both Canada and the Centre itself. Because of its status, the Centre can support research and activities that the Government of Canada would like to encourage (e.g., the early days of democratic transitions in the Southern Cone and in South Africa) but in which it may not itself be ready to become involved. Because of its status as a Crown corporation, IDRC can function efficiently: its administrative, financial, and human resource processes are tailored to its size and line of business. It can also more easily accommodate financial partnerships with donors from other countries.

IDRC has been recognized by the Office of the Auditor General and others as a model of good corporate governance. Its strong governance system through and by its Board of Governors, its solid record in managing risk, and its strong audit and evaluation functions have been recognized in Canada and abroad as being global standard setters. Heritage Canada has reported that IDRC serves as an excellent example of a multi-cultural and bilingual employer. A 2007 study of international development research donors undertaken by the Overseas Development Institute on behalf of the UK Department for International Development (DFID) noted that "The only bilateral to stand out consistently in terms of positive evaluations (including among both northern and southern key informants) was the Canadian International Development Research Centre (IDRC)."

As a result of its international reputation, IDRC attracts partnerships with many leading agencies engaged in development — including CIDA, DFID, the Ford Foundation, the Hewlett Foundation, the International Fund for Agricultural Development, and the Swiss Agency for Development and Cooperation — as well as with private sector partners, including Microsoft Corporation, and several other federal government departments. IDRC's Parliamentary appropriation is \$146 million in 2007/08. Agreements are expected to be signed this year with other donors, government departments, and foundations for a further \$32.3 million.

Who We Are

IDRC is one of the few institutions in the world that builds local capacity in developing countries to undertake research and create innovations, based on the conviction that researchers and innovators in developing countries must take the lead in producing and applying knowledge for the benefit of their own communities.

The Centre was established by an Act of Parliament, the *International Development Research Centre Act (1970)*, passed by the House of Commons and Senate with unanimous support. (See Annex 3: *Excerpts from the IDRC Act (1970)*.) IDRC is a Crown corporation. As a member of Canada's international policy community, the Centre works collaboratively with a number of federal government departments. Guided by an international Board of Governors, IDRC reports to Parliament through the Minister of Foreign Affairs. Many leading agencies engaged in development, including the Canadian International Development Agency, the UK Department for International Development, the Ford Foundation, the Hewlett Foundation, the Bill & Melinda Gates Foundation, the International Fund for Agricultural Development, and the Swiss Agency for Development and Cooperation, as well as private sector partners, such as Microsoft Corporation, have chosen to partner with IDRC because of its widely recognized experience and good corporate governance.

In accordance with the *IDRC Act (1970)*, the 21-member Board of Governors oversees the Centre's strategic direction. The Board comprises 11 members from Canada and 10 from other countries, including developing countries. Mary Coyle, Director of the Coady International Institute, is Acting Chair of the Board. As President and a member of the Board, the President, Maureen O'Neil, manages the Centre's operations with the support of the Senior Management Committee. (See Annex 1 for a list of Governors and biographies of the Chair and senior staff.)

To deliver its mandate, IDRC relies on close to 450 skilled researchers, scientists, managers, analysts, and administrative and professional staff who work at the Centre's head office in Ottawa and its regional offices in Cairo, Dakar, Montevideo, Nairobi, New Delhi, and Singapore. IDRC employees come from more than 60 countries. Canadian Heritage's *Annual Report on the Operation of the Canadian Multiculturalism Act 2002-2003* reported that "IDRC serves as an excellent example to Canadians and citizens of other countries of how people of different cultures and national origins can work together to address serious concerns that transcend borders and nationalities, and sometimes threaten the very existence of the greater global community."

IDRC's 2007/08 Parliamentary appropriation is \$146 million. Agreements are expected to be signed this year with other donors, government departments, and foundations for a further \$32.3 million.

What We Do

IDRC provides technical support and funding to applied research in developing countries. IDRC's work thus lies at the intersection of Canada's innovation and foreign policy agendas. IDRC believes that research, knowledge, and innovation are the keys to long-term social and economic development.

This belief is by an increasing number of international actors, among them the United Nations' Millennium Project's Task Force on Science, Technology, and Innovation, which stated in 2005 that "Developing countries will likely remain mired in poverty unless they can do what developed countries have done to achieve sustainable growth: incorporate science, technology and innovation into their economic strategies." However, notes the Task Force, "science and technology have been given neither the urgency nor the priority they deserve in international aid."

The lack of research and innovation capacity in developing countries is acute. In 2005, the Organisation for Economic Co-operation and Development (OECD) reported that in industrialized countries, the proportion of gross domestic product (GDP) devoted to research and development (R&D) averaged between 2.5% and 4%, with Sweden (3.98%), Finland (3.49%), and Japan (3.15%) leading the way. (Canada spent 1.91%.) The equivalent figures in the developing world are substantially lower, generally below 0.5% with some exceptions, notably Brazil (0.91%), China (0.69%), and India (1.2%). And while progress is being made — in Latin America, for instance, the investment in R&D increased from 0.49 to 0.55% of GDP between 1990 and 2003 — it still falls far short of the OECD countries.

In fact, OECD countries account for more than 80% of world research and development expenditure: most of that research does not address the problems of developing countries.

In all its work, the Centre is guided by the principles of sustainable and equitable development, poverty reduction, and the promotion of human rights. In its current strategic plan, the Centre pursues three objectives:

- ❑ to strengthen and help to mobilize the local research capacity of developing countries, especially in the four program areas of Environment and Natural Resource Management; Information and Communication Technologies for Development; Innovation, Policy and Science; and Social and Economic Policy;
- ❑ to foster and support the production, dissemination, and application of research results that lead to changed practices, technologies, policies, and laws that promote sustainable and equitable development, human rights, and poverty reduction; and
- ❑ to leverage additional Canadian resources for research for development by creating, reinforcing, funding, and participating in partnerships between Canadian institutions and institutions in the developing world.

Canadian investments through IDRC have led to results in the following areas:

- ☐ improved capacity of individual researchers and research teams;
- ☐ stronger institutional capacities for research and research management;
- ☐ the development of new institutions;
- ☐ new technologies;
- ☐ new research and evaluation methodologies; and
- ☐ improved policies and practices.

Our partners in developing countries have confirmed that providing opportunities for researchers to improve their research skills, their research management skills, and their ability to ensure research results are applied in practice — capacity building — is arguably the most important and sustainable outcome of what we do. The growth of the people with whom we collaborate is an enduring contribution to long-term democratic, economic, and social development.

This contribution was recognized in a recent study of international development research donors undertaken by the Overseas Development Institute on behalf of the UK Department for International Development (*Setting the Scene: Situating DFID's Research Funding Policy and Practice in an International Comparative Perspective*). The report noted that “The only bilateral to stand out consistently in terms of positive evaluations (including among both northern and southern key informants) was the Canadian International Development Research Centre (IDRC) ... This reputation was based predominantly on their role in supporting innovation, capacity building/mentoring and a focus on research-policy linkages...”

A results-based organization

For almost four decades IDRC has played an important role in building and strengthening the work of institutions for development, including some of the member centres of the Consultative Group on International Agricultural Research, the Micronutrient Initiative, India's National Council on Applied Economics Research, Peru's Economic and Social Research Consortium, and the African Economic Research Consortium, to name just a few. In recent years, this has included technical contributions to improve conditions for institutional governance, administrative and financial management and practices, and fundraising and accountability.

IDRC also fosters leadership, not only among researchers but also in others, such as civil society organizations, that are involved in the research process and that use the knowledge produced. Many recipients of IDRC funding have gone on to become ministers, heads of government, or senior officials of developing countries or of international organizations.

These activities have led to a number of tangible results, among them new technologies that open the doors to education and knowledge sharing, that improve livelihoods, and that help ensure environmental sustainability. They include:

- ❑ software for digitizing languages written in non-Roman alphabets, including Khmer, Lao, Singhalese, and Tamil;
- ❑ an Internet-based education portal through which Mexico's public servants can upgrade their qualifications. The goal is to establish and support a professional and non-partisan public service.
- ❑ hullers and crushers to enable women's cooperatives in Morocco to mechanize the processing of oil from argan nuts for the food and cosmetic industry, thereby increasing their incomes;
- ❑ tissue culture techniques for small banana producers in Kenya to enable them to maintain virus-free plant stocks and increase their incomes;
- ❑ simple, inexpensive treatment systems in Jordan so that household greywater can be reused for irrigation, thereby reducing water consumption and increasing food production;
- ❑ an Integrated Environmental Management System (SIGA) to help cities in Latin America and the Caribbean identify, prevent, and reduce potential environmental risks, using geographical information system technology, processing maps, charts, satellite images, aerial views, and other sources to identify vulnerable urban areas;
- ❑ locally manufactured insecticide-treated bednets in Tanzania and elsewhere in Africa as a first line of defence against mosquitoes, vectors of malaria; and
- ❑ community-based methods of controlling the spread of mosquitoes in rural areas of Mexico. As a result, Mexico was able to eradicate malaria while eliminating the use of DDT, a requirement of the NAFTA treaty.

Equally important, IDRC-supported research has also led to changed practices and policies. For example:

- ❑ In Bolivia, research on new and traditional water management practices led to the passing of a new irrigation law in 2004 that ended decades of conflict over water allocation. A new Water Ministry has been created to implement the law.
- ❑ In Africa, analysis of VSAT (Very Small Aperture Terminal systems) regulation resulted in policy and legislation reforms in many countries, increasing the number of networks and providers and reducing costs. As a result, many Africans now have access to markets, business opportunities, distance learning and other Internet-based services.
- ❑ In Latin America, IDRC supported the Sociedad Peruana de Derecho Ambiental (SPDA—Peruvian Society for Environmental Rights) in its effort to fortify institutional defences against biopiracy — the unlawful or unethical appropriation of genetic materials and traditional knowledge about how to use them. In 2005, a landmark agreement was signed with the Andean Community of Nations to

take practical measures against biopiracy, including raising public awareness about the issue and improving patent-granting procedures in the case of genetic resources.

- ❑ In Cambodia, research to solve conflicts over the use of natural resources in highland areas resulted in the creation of natural resource management committees in communes and the granting of land management rights by the government. Ecotourism sites have since been established, providing incomes for residents and ensuring environmental protection.
- ❑ In Egypt, research on the small and medium enterprise sector, which accounts for 75% of private sector employment, has greatly improved the business environment through a new government competitiveness strategy, including new income tax and tender laws.
- ❑ In Africa and Latin America, research on urban agriculture has led to new laws and regulations to ensure equitable allocation of land to urban farmers; improve water treatment and sanitation; and increase food supplies and sources of income for poor urban residents.
- ❑ In Guatemala, where land rights were one of the root causes of the armed conflict — unequal distribution of productive land, dispossession of Indigenous lands, and unclear ownership of land — the 1996 peace accords provided a political framework for addressing land tenure problems. IDRC supported the efforts of governmental and non-governmental groups during the 1990s to review the prevalent types of land-related conflicts and draft legislation to resolve them by regularizing land tenure and use of natural resources. The experience gained through this project is now being applied in Bolivia where land rights are at the heart of debates surrounding planned constitutional and agrarian reform.
- ❑ In Jamaica, research to find ways of decreasing tobacco use without threatening government revenues led to a new policy in 2005 to gradually increase taxes on tobacco products. Projections show that increasing these taxes to 70% of market price would increase government revenues from tobacco by 50% while decreasing demand by 40%.

Whether it is in the natural, social, or information sciences, IDRC's support goes to research that takes as its starting point a development problem rather than an academic discipline. As such, most of our research is multidisciplinary, frequently combining elements from both the natural and social sciences. This is consistent with the Centre's view that technological innovations must involve social and policy adaptation if they are to be taken up and used — innovation is a social process. IDRC's contributions to development theory and practice, as well as tangible results of the work it has supported since its inception, are now being documented in a book to be published in 2008/09.

Programming focus

The Centre's current strategic plan (2005–2010) identifies four program areas in which the Centre supports research:

- ❑ **Environment and Natural Resource Management:** Research focuses on the sustainable use and management of natural resources, stressing the involvement of local communities.
- ❑ **Information and Communication Technologies for Development:** IDRC was one of the first development agencies to embrace information and communication technologies (ICTs) as a key means to foster development.
- ❑ **Innovation, Policy and Science:** This program area is the focal point of IDRC's policy, partnership, and programming on the science and technology, innovation and development agenda.
- ❑ **Social and Economic Policy:** This program supports research to inform key areas of public policy related to poverty reduction, equitable development, and human rights.

This programming focuses on core priorities of the Government's 2007 science and technology strategy — natural resources, the environment, health, and information technologies.

At March 31, 2007, the Centre was supporting 940 research activities.

Examples of how IDRC-supported research has led to new approaches to development problems in recent years include:

- ❑ the Small and Medium Enterprises Policy Development (SMEPol) project that is helping Egypt make the transition toward a market economy by reducing the burden of unnecessary regulations on small and medium enterprises;
- ❑ the Acacia Program of research support to assess whether and how new information and communication technologies can help communities in Africa gain control over their social and economic development;
- ❑ the Tanzania Essential Health Interventions Project (TEHIP), whose practice of evidence-based healthcare management helped reduce under-five mortality rates by more than 40% in two districts in Tanzania with an additional investment of only US\$1 per person per year. The health intervention tools developed through the project are now being extended to the rest of Tanzania and being adapted to Nigerian conditions;
- ❑ research and advocacy on VSAT regulation that developed model legislation, now accepted by three regional regulatory associations that cover three-quarters of Africa, to liberalize licensing;
- ❑ ecohealth, or the ecosystem approach to promoting human health while protecting the natural environment, which has delivered both improved human

health and more sustainable ways of managing the environment in several countries, for example a 40% reduction in the number of mercury poisoning cases in the Amazon;

- ❑ research networks supported by IDRC that have assisted developing countries to understand the implications of new issues in international trade negotiations, from liberalization of services trade to product standards to competition policy. In the Caribbean, for example, research supported by IDRC highlighted the ways cartels affect consumer prices, which in turn fed directly into CARICOM negotiating positions regarding the Free Trade Area of the Americas;
- ❑ the establishment of a network of economic researchers in Vietnam that offers training and guidance to young researchers and carries out research that has helped the country complete key changes in its economy, such as trade liberalization and banking reforms;
- ❑ outcome mapping, a new methodology for evaluating the qualitative outcomes of development projects, now being adopted by the World Bank and others.

See Tab 8 for more examples of recent IDRC projects.

Promoting collaboration

International collaboration has always been the norm for scientific activity. IDRC promotes partnerships between Canadian researchers and their counterparts in developing countries, with clear mutual benefits: approximately 20% of IDRC's program spending goes to such partnerships. In addition, through its Canadian Partnerships Program, IDRC fosters alliances and knowledge sharing between scientific, academic, and development communities in Canada and the developing countries.

In 2005, the IDRC Research Partnerships Challenge Fund was established to support growing interest by both researchers and funding agencies in North–South research partnerships for development. Through this fund, IDRC creates new research networks and consortia to tackle international development challenges. The fund, which can only be used in tandem with resources from other Canadian and international organizations that support research, was first used to launch the Canadian Global Health Research Initiative's Teasdale–Corti Global Health Research Partnership program. This initiative expands an existing partnership between IDRC and the Canadian Institutes of Health Research, the Canadian International Development Agency (CIDA), and Health Canada. The most recent application of the Research Partnerships Challenge Fund is in support of the International Community–University Research Alliance through which IDRC and the Social Sciences and Humanities Research Council of Canada are investing up to \$6.3 million between 2007 and 2013 to support international research alliances. This partnership will engage teams from Canada and developing countries in comparative

and collaborative research, while working with people in communities that will directly benefit from the research.

In addition, a Training and Awards Program also builds the capacity of young Canadians and nationals from the developing world through support for academic study and opportunities for hands-on experience. Over the last seven years, IDRC has granted close to 500 awards. In 2006/07, IDRC supported 15 types of awards, most of them for scholars pursuing Master's and PhD degrees.

South-South collaboration is also promoted, often through networks such as the Latin American Trade Network, created in 1998 with IDRC support. This independent research network builds the capacity of individuals and institutions to analyze trade issues and formulate sound policies. Peer learning is also encouraged, for example through a mentorship program for science journalists supported by IDRC, the UK Department for International Development, and the Swedish International Development Agency. The program teams novice journalists from Africa and the Middle East with experienced professionals who advise, tutor, critique, and encourage their colleagues in this relatively new field of journalism.

An essential element of IDRC support for researchers in the developing world is facilitating access to scientific information. The Centre makes available a collection of research databases that contribute to its partners' ability to develop well-researched proposals and to inform their research by global scientific and scholarly literature. The almost 1 700 partners who currently subscribe to the service conducted close to 45 000 searches in 2006/07 and downloaded 27 000 full-text articles. IDRC also offers an online research management and collaboration tool that allows researchers to manage and share references to articles, papers, reports, etc., used in the course of their research: there are 239 registered users and 28 442 references stored in the client databases.

In addition, in April 2007, IDRC launched its Digital Library (DL) that provides anyone with an Internet connection access to a comprehensive collection of research results and documents generated by almost 40 years of IDRC-funded projects. This is the first open access institutional repository established by a Canadian research-funding organization. This initiative also provides IDRC-funded researchers with a valuable outlet to publish and showcase their work. Through the DL, their work is available not just to a few subscribers of journals, but to anyone with access to the Internet.

Why Our Work Is Important

IDRC's work in the developing world brings tangible improvements to the lives of people while building capacity for local scientists and decision-makers to address their own problems.

In doing so, IDRC contributes to Canada's status as an important and valued participant in the international community, as a source of knowledge, and to Canada's image as an innovative and generous country. In mid-December 2006, for instance, the importance of IDRC's long-term support for India's National Council of Applied Economics Research was recognized by Indian Prime Minister Dr Manmohan Singh at a high-level public policy conference.

IDRC's mission and activities are consistent with the Canadian Government's commitment to support Canada's core values of freedom, democracy, the rule of law, and human rights around the world. IDRC's Corporate Strategy and Program Framework 2005–2010 explicitly recognizes that the respect, protection, and promotion of human rights constitute an integral part of sustainable and equitable development and poverty reduction.

Moreover, IDRC firmly believes that research can foster democratic development. As IDRC President Maureen O'Neil testified before the House of Commons Standing Committee on Foreign Affairs and International Development on October 2, 2006, it does so in four ways:

- ❑ First, research provides a foundation for open inquiry and debate. In West Africa, for instance, dissemination of results of research on corruption and inequitable access to health care paved the way for the reformulation of the payments exemption policy for the poor in regional hospitals in Burkina Faso and the establishment of clear indicators of eligibility for exemption in Côte d'Ivoire. In Brazil, research found that urban youth are more likely to participate in democratic processes if they feel their actions can produce results. Wide discussion of the results in Brazil led the government to adopt a youth policy.
- ❑ Second, research expands the range of practical solutions to enduring problems and encourages innovation. For example, a project approved in early 2007 is linking four Latin American countries that have been involved in Haitian co-operation and peacekeeping operations, to probe what is needed to foster a durable peace and re-establish functional institutions in that country. By examining a broad range of areas, the project provides an opportunity to enhance institutional capacities for South–South collaboration, and could become a template for examining how fragile states can rebuild.
- ❑ Third, research helps hold governments to account by providing evidence for public debate. In Guatemala, IDRC supports a judicial observatory to monitor

reforms in the criminal justice system. Research has led to a number of new regulations on policing and the administration of justice.

- ❑ Finally, research provides the basis for evidence-based policy-making. A notable example is work being carried out in Asia, Africa, and Latin America to identify causes and measure the extent of poverty. The data, collected in and by poor communities, has led to new, better targeted strategies and programs and has provided tools with which citizens can hold their governments to account.

The flip side of the coin is that donors' efforts to support democratic reform also need to be based on sound evidence. To contribute to this goal, IDRC is organizing a round-table discussion — The Meeting of Democrats — in December 2007 to reflect on the roles donors can and cannot play in supporting democratic openness from a distance. In attendance will be distinguished figures such as former President of Chile Ricardo Lagos, who were instrumental in democratic transitions in developing countries and who received assistance from donors while living under an authoritarian regime.

Promoting democracy also includes setting an example. In June 2006, IDRC, along with the Department of Foreign Affairs and the Parliamentary Centre, brought 13 Afghan parliamentary officers to Ottawa to learn how Canada's Parliament functions. The Afghan team met with Prime Minister Stephen Harper and House of Commons Speaker Peter Milliken.

Supporting Canada's foreign policy and science and technology policy goals

A Crown corporation operating under its own Act of Parliament, IDRC has the autonomy it needs to establish links and advance policy issues important to Canada, even when, for political reasons, the Government is unable to become involved officially. For example, Canada, through IDRC — operating with both funding from the Canadian International Development Agency (CIDA) and its own resources — played a pivotal role in supporting the transition to democracy in South Africa and continues to support researchers there. In 1988, IDRC was one of the few international organizations working with South African researchers, mostly in the Front Line States. It helped the Mass Democratic Movement in the areas of economic policy, urban governance, and health. When the first democratic government was formed in 1994, more than half of the cabinet ministers had participated in IDRC projects.

Similar examples could be cited from the Southern Cone of Latin America in the 1970s and 1980s and Vietnam's transition from a centrally planned to a market economy in the 1990s. In 2004, IDRC supported a similar project in support of the democratic transition in Kenya with technical support and funding for practical, research-based innovation. (Some of IDRC's support for countries in transition has recently been documented

by IDRC and published on its Website at www.idrc.ca/en/ev-112076-201-1-DO_TOPIC.html/)

More recently, IDRC has been supporting research capacity development in Afghanistan where research capacity is very weak. For example:

- ❑ Working with the Afghan Ministry of Agriculture, researchers from the International Center for Agricultural Research in the Dry Areas generated a wealth of information on community seed management. Although in much need of strengthening, this informal system holds the greatest promise for food security in Afghanistan.
- ❑ IDRC is also strengthening skills in participatory research in a broader effort, supported by the United Kingdom, to involve poor rural Afghans in developing alternatives to opium poppy farming.
- ❑ While armed conflict isolates researchers, IDRC support puts them in contact with peers in other countries. One project brings Kabul University into the new Himalayan University Consortium with Chinese, Indian, Nepalese, and Pakistani universities, to build research capacity among Afghani faculty members and government officials.
- ❑ Another project tests an information and communication technology (ICT) model developed in India to deliver agricultural and marketing information to Afghani farmers.

IDRC has supported 10 projects in Afghanistan since 2002, twice as many as it did in the previous 32 years. Two senior managers visited Kabul in January 2007 to build additional contacts and several new projects are under discussion, such as research on security sector reform and on transitional justice.

Research can also make a critical difference in the deals struck during peace negotiations. Peace settlements reflect the many arrangements among warring parties for future power-sharing, wealth distribution, and security. IDRC lent its expertise on gender and conflict to help the African Union Mediation commission integrate issues such as women's political participation and access to education in the May 2006 Darfur Peace Agreement. Unfortunately, the agreement collapsed shortly after and violence escalated in Darfur and eastern Chad.

In addition, IDRC's work focuses on core priorities of the Government's science and technology strategy, announced in May 2007. That strategy outlines federal support for research and development in four key areas — natural resources, the environment, health, and information technology — all of which are at the heart of IDRC's programming.

For example, IDRC has proven to be a useful vehicle for the Government of Canada to support its agenda for promoting greater access to information and communication technologies for development. For example, IDRC's President served as the Canadian Co-chair of the G8 Digital Opportunity Task Force along with the Deputy Minister of Industry Canada and the CEO of Telesystems. Another example is Connectivity Africa, announced as part of Canada's Africa Action Plan at the G8 summit in Kananaskis in 2002. Industry Canada is a major partner. Connectivity Africa is implemented by IDRC in partnership with the United Nations Economic Commission for Africa. Similarly, the Institute for Connectivity in the Americas, announced as Canada's contribution toward connectivity in the Americas during the Summit of the Americas in 2001 is an example of interdepartmental cooperation with Industry Canada, the Department of Foreign Affairs, and CIDA. It is currently funded by IDRC and CIDA.

Not only has IDRC been of benefit to Canada in its relations with the developing world, but the Centre has also been a source of practical, research-based innovations over the last third of the century, as the previous section and examples provided under Tab 8 demonstrate.

Research supported by IDRC is of great importance in understanding many of the major challenges faced by developing countries today, such as HIV/AIDS, infectious diseases and the threat of pandemics such as avian influenza, the development of science and technology policy (identified by the 2004 InterAcademy Council report as a key development challenge), and private sector development. For example:

- ❑ In April 2006, IDRC teamed up with national research councils and health research institutes in five countries, the Canadian Institutes of Health Research (CIHR), and the Public Health Agency of Canada to launch the Asian Partnership for Avian Influenza Research (APAIR). APAIR brings together senior health and veterinary scientists from Cambodia, China, Indonesia, Thailand, and Vietnam, plus research council managers and international thinkers and donors working on highly pathogenic avian influenza (HPAI). APAIR's mission is to develop shared, multidisciplinary research on HPAI and more broadly on pandemic influenza prevention and control. In late 2006, IDRC funded the first three substantive research projects, studying issues related to migratory birds, backyard poultry producers, and economic impacts of both the disease and its control strategies. The effort aims to also enhance Canada's preparedness. In a related measure, IDRC will sponsor, jointly with CIHR's Institute of Infection and Immunity and other Canadian partners, a research program on understanding the transmission of pandemic influenza and on innovative approaches to its prevention.
- ❑ On May 17, 2006, IDRC and the UK's Department for International Development (DFID) launched a large research and capacity development program to help Africa's most vulnerable cope with the impacts of climate change.

DFID is investing £24 million and IDRC \$15 million in the five-year Climate Change Adaptation in Africa program. The program strengthens research on how African countries and communities can best deal with the expected effects of climate change. The first 10 research projects were approved in February and March 2007.

- ❑ IDRC is supporting a number of research teams collaborating with public health authorities in South Africa's Free State province to scale up AIDS treatment. This twinning of researchers and research users has seen innovations emerge in the areas of nurse training and support, the use of information technologies for patient monitoring, and community outreach. The program also provides a steady flow of feedback — sometimes critical — so that the department of health can constantly refine its approaches based on evidence. The state-of-the-art information management system also gives the department a clear picture of the effectiveness of its roll-out model, and allows it to publicly report on overall progress. Free State was the first South African province to have a patient profiling system. Over time, this tracking may provide valuable input into global efforts to track the evolution of HIV/AIDS and drug resistance to antiretroviral therapy. As of early 2006, randomized trials had shown dramatic improvements in diagnosis among those trained in the system. Tuberculosis (TB) detection among patients seen by trained nurses went up 68%, while the numbers of TB patients undergoing voluntary testing for HIV increased by 110%. South Africa's National Department of Health is now exploring whether the approach can be implemented nationally.

IDRC has supported the governments of Botswana, Chile, Jordan, Mozambique, South Africa, and Vietnam to conduct path-breaking reviews of their science and technology policy. In several of these countries, IDRC has been invited back for a follow-up review. IDRC's research has also supported private sector development through improved policy environments, through wider access to ICTs, and through the development of various directly productive technologies. Needless to say, HIV/AIDS, pandemics, science and technology policy, and private sector development are of interest to more than just the developing countries.

In addition, IDRC participates in technical discussions and reviews of strategies and policies of a number of multilateral organizations. Recent examples include collaboration with the Inter-American Development Bank (IDB) in designing a new policy and strategy for the Bank's rural development work in Latin America and the Caribbean. This led to a restructuring of services within the IDB. IDRC also provided input into the World Bank's 2008 *World Development Report* on agriculture for development. IDRC is also collaborating with the Pan American Health Organization to refine a conceptual and management approach, and a framework for research on health systems governance.

How We Work and Collaboration with Canadian Federal Government Departments

IDRC's principal approach is to support research projects and related activities designed and proposed by developing-country institutions. Canadian institutions are also supported when there is collaboration with one or more partners from developing countries. The researchers and innovators whom we support may work in universities, governments, NGOs, or the private sector. They share a passion for innovation and change.

Partnerships

IDRC has always understood that development research is a collaborative venture. The Centre has encouraged partnerships that foster open and equitable participation, and facilitate an easy interaction between research insight and practical application. IDRC therefore supports not only individual researchers or research teams, but networks of researchers and research users. These networks are important ways of sharing results and applications, stimulating debate on important scientific questions, and linking researchers with policymakers and other research users.

Linked to its networking, IDRC's convening power — the ability to bring together many divergent stakeholders to discuss recent research and innovations — is considerable.

Here are some examples:

- ❑ To mark the 10th anniversary of the Canada–Chile free trade pact in 2007, IDRC is collaborating with the Department of Foreign Affairs and International Trade (DFAIT) in organizing discussions between members of the academic, private, and public sectors in Canada and Chile on innovation policies and collaborative approaches to the development and use of biotechnologies.
- ❑ In September, IDRC organized a workshop in Montréal with researchers and partners participating in a project launched in 2007 to examine the experience of four Latin American countries (Argentina, Brazil, Chile, and Mexico) involved in development cooperation or peacekeeping in Haiti. The goal is to probe what is needed to foster a durable peace and re-establish functional institutions in that country. The workshop provided an opportunity to foster dialogue and knowledge exchange with Canadian peers and representatives of institutions collaborating with Haiti. Participants included the research leaders, researchers, and representatives of research centres in Canada, the Canadian International Development Agency (CIDA), DFAIT, and selected members of governmental institutions of the four Latin American countries.
- ❑ In February 2007, leading Canadian and developing-country researchers shared

their knowledge of the science and implications of climate at a workshop on *Strengthening Climate Change Adaptation Research – Mobilizing and Enabling International Research Partnerships*, organized by IDRC. Participants explored options and means for cooperation on climate change adaptation research.

- ❑ In 2005, the Government of Canada asked IDRC to coordinate the organization of the Canadian pavilion at the World Summit on the Information Society II (WSIS II), held in Tunisia in November 2005. The pavilion, shared by the Canadian e-policy Resource Centre, CIDA, Industry Canada, IDRC, and Statistics Canada showcased the efforts made by Canada in response to the WSIS action plan.
- ❑ An IDRC forum held at Harvard University in September 2003 on the role of information communication technologies (ICTs) in poverty reduction was co-convened by two Nobel Prize laureates in economics (Amartya Sen and Michael Spence) and attracted a host of other experts, including Muhammad Yunus, pioneer of microcredit and recipient of the 2006 Nobel Peace Prize. Mr Yunus is a former IDRC recipient.
- ❑ In 2003, IDRC and the International Association for Ecology and Health (IAEH) jointly organized an International Ecohealth Forum in Montreal where some 400 researchers, policymakers, practitioners, and civil society representatives from around the world shared knowledge, and institutions considered strategies for a way forward. This first ecohealth forum built bridges between different disciplines and different stakeholders for more effective, more equitable development. IDRC and IAEH are organizing a second forum in 2008.

As a member of Canada's international policy community, IDRC remains committed to consultation and collaboration with other members. For example, the process of developing the Centre's strategic plan 2005–2010 involved consultation not only with the Department of Foreign Affairs and International Trade, CIDA, the Department of Finance, the Privy Council Office, Industry Canada, Health Canada, Natural Resources Canada, and the National Research Council, but also with scholars, officials, and innovators from developing countries. The Canadian research community — notably the research funding councils, the Association of Universities and Colleges of Canada, and several prominent Canadian scholars — also took part in the discussions about the appropriate direction of IDRC programming.

CIDA remains IDRC's major partner in Canada. IDRC's comparative advantage lies in the fields of research, research management, South–South networking, interdisciplinarity, and socio-technical innovation. CIDA and IDRC each bring their particular strengths to joint projects. This allows them to accomplish more than either agency could on its own. (See pages 5–6 to 5–13 for examples of collaborative projects between IDRC and various federal government departments and agencies.)

In addition to our research partnerships, IDRC also enters into funding partnerships

with other donors. The purpose is to increase the level of resources flowing to applied research in developing countries carried out by developing-country scholars. IDRC's solid record of financial and risk management, and the fact that the Centre has its own separate bank account, make this sort of collaboration possible.

Governance and accountability

IDRC has been recognized by the Office of the Auditor General (OAG) and others as a model of good corporate governance. In accordance with the *IDRC Act (1970)*, a 21-member Board of Governors oversees the direction and management of IDRC. The full Board meets three times a year, and has four standing committees: the Executive Committee, the Finance and Audit Committee, the Human Resources Committee, and the Nominating Committee. The Board comprises 11 members from Canada and 10 members from other countries. (Refer to Annex 1 for a list of current Board members.) The Chair of the Board of Governors reports to Parliament through the Minister of Foreign Affairs.

In a Special Examination performed at the request of IDRC in 2003, the OAG concluded that "IDRC's Board of Governors has solid governance practices in place." Indeed, for almost 40 years, thanks to a visionary Act and good practice by successive Boards, IDRC's governance structure and process have incorporated features that are now proposed as standards of good practice for all Crown corporations. These include:

- ☐ arm's length appointment of the IDRC President by the Governor in Council, based on the recommendation of the Board;
- ☐ specification of the qualifications that Board members must have in order to be appointed;
- ☐ annual evaluation of the President's performance by the Board, based on objectives approved by the Board;
- ☐ appointment of the Chief Financial Officer and the Corporate Secretary by the Board;
- ☐ existence of a strong Finance and Audit Committee of the Board, which assists the Board in fulfilling its financial oversight responsibilities.

(See Annex 3 for excerpts from the *IDRC Act (1970)*.)

IDRC complies with the three-point program for aid effectiveness outlined in the Government's *Budget Plan 2007*:

- ☐ **Focus:** IDRC focuses its support to research on four thematic areas. Research programs focus on applied research to discover practical, sustainable solutions to development problems; research projects are managed for results.
- ☐ **Efficiency:** IDRC has several mechanisms at both management and Board levels

to regularly review priorities, evaluate successes and problems, and reallocate resources. The IDRC Board approves plans spelling out research priorities, objectives, and an evaluation plan. Special Examinations by the Office of the Auditor General going back a quarter century have commended IDRC's good corporate governance and management.

- ❑ **Accountability:** IDRC reports annually to Parliament through the Minister of Foreign Affairs. This report includes an audit of its financial statements by the OAG; for 37 years, the OAG has issued an unqualified opinion. IDRC meets or exceeds the standards set by Treasury Board for transparency and accountability in corporate governance. IDRC has posted on its public Website a searchable database containing all of its projects since 1971 (see <http://idris.idrc.ca>).

IDRC has mechanisms to ensure that its programs remain relevant, practical, and innovative and provide good value-for-money. The Board of Governors reviews the entire program as part of its strategic planning every five years. Programs that are not working well, that have ceased to be relevant, or that have served their purpose are regularly wound up. In addition to its five-year strategic plan, IDRC has a program framework that is modified periodically and an operational framework to foster improvements in its internal administration, finances, human resources, and information management and technology. Regular project and program evaluations and audits inform these reviews.

Moreover, IDRC's Management Accountability Framework meets or exceeds Treasury Board standards. In July 2006, Treasury Board approved IDRC's new Program Activity Architecture.

IDRC employs modern management tools to maximize its transparency and accountability. For example, in 2006, Canadians and others around the world each month viewed more than 7 million IDRC Website pages, a number on par with visits to the World Bank, Ford Foundation, and the UK's Department for International Development (DFID) sites. IDRC is also subject to federal access to information and privacy legislation. IDRC prepares a comprehensive annual report, complete with financial statements, that is tabled in Parliament by the Minister of Foreign Affairs. The Office of the Auditor General has frequently commended IDRC's annual report and in 2004 nominated the Centre for its Award for Excellence in Annual Reporting by Crown Corporations. The report is available, full text, on IDRC's Website (www.idrc.ca/en/ev-102797-201-1-DO_TOPIC.html).

IDRC also submits annual reports to the appropriate government institutions in full compliance with the *Official Languages Act*, the *Employment Equity Act*, and the *Canadian Multiculturalism Act*. IDRC management must also account to its Board of Governors for program results as well as for its financial management performance and human resources practices.

Measuring effectiveness

The Office of the Auditor General, which has always issued an unqualified opinion about the Centre's financial statements, audits the Centre annually. The OAG has also performed periodic Special Examinations of the Centre's operations at IDRC's request. The last such examination was presented to the Board and the Minister in March 2003. The OAG found that in executing its program of work, IDRC exercises probity and proper stewardship of the public resources that have been entrusted to it. It noted that "IDRC has a good structure and processes in place to measure its performance [...] IDRC is continually seeking ways to improve."

This finding is in line with the findings of a long series of Special Examinations by the OAG over the years. An earlier OAG report, for example, included IDRC on its list of high performing Crown corporations and federal departments. The OAG had previously concluded that "IDRC operates with highly qualified, experienced and dedicated professional staff, many of whom are internationally renowned in their fields. Most project recipients we interviewed considered the IDRC approach superior to that of other international aid agencies." The Special Examination report is available on IDRC's Website at www.idrc.ca/en/ev-101968-201-1-DO_TOPIC.html/.

In November 2006, IDRC invited the OAG to conduct another special examination. These examinations have been a statutory requirement only since 2005, but IDRC has volunteered for them regularly since 1982. Although the law requires that the next examination be completed only by 2010, IDRC asked for one to be concluded by March 2008 to maintain the five-year cycle.

In 2006, IDRC updated its internal audit charter to align it with the most recent Treasury Board policy and with principles and standards of the Institute of Internal Auditors. IDRC's internal audit function is currently outsourced to Interis LLP: IDRC's Chief Audit Executive is thus a principal partner in Interis. He reports to the Finance and Audit Committee of the IDRC Board, which is chaired by Denis Desautels, the former Auditor General of Canada.

IDRC is a recognized leader in evaluation and is often consulted by Canadian and international organizations seeking advice on effective evaluation. The Centre's overall approach to evaluation prioritizes equally the use of rigorous methods and the use of findings to create opportunities for learning as well as be accountable for the spending of public funds. Since 1992, IDRC has had an independent Evaluation Unit that coordinates evaluation activities.

Evaluation at IDRC serves both accountability and learning needs. The Evaluation Unit is currently studying the issue of individual and institutional capacity building in developing countries and has recently completed comprehensive assessments of the public

policy influence of IDRC's work in developing countries and of the role of networks. A corporate assessment framework allows senior management to manage for results on an ongoing basis. All programs undergo external reviews every four to five years. Through internal and external evaluations and self-assessments, projects are assessed as required. A new process for carrying out project completion reports is improving effectiveness by generating and sharing tacit knowledge throughout the Centre.

Foreign governments, foundations and other donors, senior researchers, and policy-makers from around the world, as well as independent evaluators, have attested to the effectiveness of IDRC's programs. For example, independent reviewers for the Swedish International Development Agency and the UK's Department for International Development have praised IDRC's business model.

Collaboration with Canadian Federal Departments and Agencies — Some Examples

What follows is a selection of some of the more important research collaborations between IDRC and federal government departments and agencies. The list is not exhaustive. Rather, it is intended to give the reader an idea of the breadth of collaborations that IDRC engages in, and the particular contributions that IDRC makes to these partnerships.

Department of Foreign Affairs and International Trade (DFAIT)

The Department of Foreign Affairs and International Trade (DFAIT) has asked IDRC to help implement Canadian initiatives in support of its role as "Gavel" of the Refugee Working Group (RWG). One such initiative is the Scholarship Fund for Palestinian Refugee Women in Lebanon, initiated by Canada. IDRC was selected to be Project Coordinator and Holder of the Funds. To date, a total of \$4.25 million has been raised. CIDA and the State of Qatar are major donors to the Fund. Other donors include the OPEC Fund for International Development and the governments of the United States, France, and Spain, as well as IDRC. To date, 206 students have received scholarships: 81 have graduated from university.

In late November 2005, DFAIT requested that two members of IDRC's Peace, Conflict and Development program travel to Abuja, Nigeria to consult with key stakeholders and participants in the Darfur peace talks. DFAIT asked IDRC to assist in efforts to integrate women's participation.

Since 2005, IDRC has worked on the Democracy Council in close collaboration with the Department of Foreign Trade and International Affairs, the Canadian International Development Agency, and other Canadian organizations.

In addition, at the United Nations' Millennium Summit in September 2000, Canada announced the establishment of the International Commission on Intervention and State Sovereignty. Both IDRC and DFAIT participated in the Commission's work. In December 2001, IDRC published the report of the Commission, *The Responsibility to Protect*.

Canadian International Development Agency (CIDA)

CIDA is IDRC's major partner in Canada. CIDA and IDRC each bring their particular strengths to the partnership, which can then accomplish more than either agency could on its own. IDRC's comparative advantage lies in the fields of research, research management, interdisciplinarity, and socio-technical innovation. CIDA-IDRC cooperation, rooted in a common purpose, continues to achieve important successes. A recent study confirms that their work is complementary to each other, not overlapping. By tradition, the President of CIDA has been a member of IDRC's Board of Governors.

Most recently, IDRC and CIDA agreed to develop a plan for collaborative research support in Afghanistan. Subsequent meetings have been held with DFAIT, CIDA, and the Department of National Defence.

Other collaborations include:

- ❑ the Small and Medium Enterprise Policy Development (SMEPol) Project launched in Egypt in 2000 to determine how policies, regulations, and legislation could be changed to create a friendlier environment for SMEs, which generate the bulk of the country's employment. As a result, a more favourable regulatory environment is being developed, and the income tax and tendering regimes were reformed. A new coherent vision for SME development has now been adopted to promote the growth of this sector.
- ❑ The Peru Economic and Social Research Consortium is an organization with over 30 institutional members among Peruvian university and research institutions. The Consortium grew out of a research project developed with IDRC and supported by both IDRC and CIDA. The Consortium seeks to strengthen the capacity of Peru's research community to produce and disseminate useful knowledge for policy- and decision-makers in government, civil society, and academia. Its mission is to contribute to Peru's development by raising the level of national debate on key options for economic and social policy. The Consortium's broad-based credibility allowed it to play an important non-partisan function in Peru's 2006 elections when it commissioned, published, and stimulated debate on think pieces on 10 crucial public policy issues. (www.consortio.org/english/index.asp)
- ❑ the Economy and Environment Program for Southeast Asia (EEPSEA), established at IDRC's initiative in 1993 to support training and research in environmental and natural resource economics. Based in Singapore, EEPSEA has so far provided training to some 700 researchers in the region, and has supported

approximately 190 research projects. While EEPSEA's success has attracted financial support from a number of governments and foundations, CIDA and IDRC remain the key supporters and donors.

(www.idrc.ca/en/ev-7199-201-1-DO_TOPIC.html)

- ❑ a 12-year partnership between CIDA, IDRC, and the Tanzanian Ministry of Health, the Tanzania Essential Health Interventions project (TEHIP) allowed local health-planning teams in two large Tanzanian districts to target the main causes of death and illness and to improve the efficiency of on-the-ground healthcare delivery. The result: a more than 40% reduction in child mortality in the two districts. Adult mortality also dropped by close to 20%. In late 2005, CIDA announced that it would invest \$7 million over three years to extend to all Tanzanians the benefits of health interventions designed and tested as part of this project.

CIDA, along with IDRC, Health Canada, and the Canadian Institutes of Health Research, is a founding partner of the Global Health Research Initiative aimed at coordinating and building upon Canada's global health research activities (see page 5–10 for more information).

Among other activities, IDRC and CIDA are currently jointly supporting the establishment of a research group and development of a mechanism to provide sound, unbiased evidence on macroeconomic trends in the Caribbean. Based at the University of the West Indies, this group is working toward the creation of an independent think tank.

IDRC and CIDA also collaborate in the Middle East Good Governance Fund, initiated in 2004 by CIDA's Iraq Task Force. At CIDA's request, IDRC develops and manages the Fund. It is designed to serve the programming priorities of both organizations and responds to real needs in the region, including those of Iraq. The overall purpose of the Fund is to increase and disseminate policy-relevant knowledge aimed at promoting good governance in countries of the Middle East.

In addition, IDRC and CIDA consult one another as part of regular analysis and priority setting. For example, in May 2007, IDRC was invited to provide comments on CIDA's strategy for Latin America and the Caribbean.

Industry Canada

IDRC's Information and Communication Technologies for Development (ICT4D) program often collaborates with Canadian ministries and departments. A key partner is Industry Canada. IDRC's President served as the Canadian Co-chair of the G8 Digital Opportunity Task Force along with the Deputy Minister of Industry Canada and the CEO of Telesystems.

IDRC developed a close working relationship with Industry Canada, as well as with DFAIT and CIDA through the Institute for Connectivity in the Americas (ICA), a multi-stakeholder initiative announced by Canada at the Summit of the Americas in Quebec City in April 2001. (www.icamericas.net/) Projects supported by ICA have empowered local communities through the use of ICTs in the areas of health, education, e-government, and by helping citizens exercise their democratic rights.

Connectivity Africa (CA) was announced as part of Canada's Africa Action Plan at the G8 meetings in Kananaskis in 2002. It is modeled on the multistakeholder approach of the ICA and Industry Canada is a major partner. IDRC is working with the United Nations Economic Commission for Africa to develop CA's program. Research supported by CA has led to innovations to provide low-cost, reliable access in underserved areas; networks through which expertise and knowledge is shared across national borders; innovative uses of ICTs to extend services, such as health and education, to underserved areas; and new policies and practices, for instance on VSAT regulation.

Industry Canada, on behalf of the Government of Canada, asked IDRC to coordinate the organization of Canada's pavilion at the World Summit on the Information Society II (WSIS II), held in Tunisia in November 2005. Industry Canada, CIDA, Statistics Canada, the Canadian e-policy Resource Centre, and IDRC were all represented at the pavilion. IDRC is a pioneer in the promotion of ICTs as a means to improve health, education, and access to markets. The Centre and its partners were involved in the WSIS Preparatory Process from the outset and had a strong presence at the Summit's first phase in Geneva in December 2003.

Finance Canada

IDRC's relationship with Finance Canada is often similar to its relationship with the Department of Foreign Affairs and International Trade. On an annual basis, when staff from IDRC's regional offices meet in Ottawa with senior staff from IDRC head office, they also meet with senior staff from Finance Canada to discuss the overall global economic situation and, in particular, issues relating to developing countries and the International Monetary Fund and the World Bank. Similarly, Finance Canada invites IDRC to take part in consultations dealing with global financial governance issues.

Financial crises in Mexico and Asia have triggered a debate on reforming the world financial and economic architecture. In 1999, IDRC launched the Global Financial Governance Initiative to examine how those reforms could best contribute to a more stable and inclusive global economic system. Through meetings and policy discussions, members of the Southern research, policy, non-governmental, and private sector communities are bringing much needed developing-country perspectives to bear on issues in international finance. Finance Canada participated in the project development workshop for the Initiative.

Natural Resources Canada

IDRC's relationship with Natural Resources Canada (NRCan) is through the International Model Forest Network Secretariat (IMFNS), which was relocated to NRCan–Canadian Forest Service (NRCan–CFS) in 2007. The IMFNS operated within IDRC under the governance of a Board of Directors comprised of representatives from the Department of Foreign Affairs and International Trade, CIDA, NRCan–CFS, and IDRC. These departments have funded the IMFNS since its inception in 1994.

The IMFNS works with interested countries and institutions to establish a global network of model forests representing the major forest ecosystems of the world. Research investigates the ways model forests can contribute to sustainable and participatory development. The International Model Forest Network includes some 42 large-scale landscapes throughout the world.

Following discussions in late 2005 and early 2006, the IMFNS Board of Directors agreed that the IMFNS should remain in Canada during its next phase (2007–2012) in order to complete the critical phase of having the network accepted and, most importantly, widely used as a global instrument to sustainably manage natural resources. It was also agreed the Secretariat would now more logically fit within an agency such as NRCan–CFS in which it could continue to develop as a policy instrument to strengthen international leadership in the delivery of sustainable development.

Health Canada, CIDA, and the Canadian Institutes of Health Research

In November 2001, the Canadian Institutes of Health Research (CIHR), CIDA, Health Canada, and IDRC entered into a cooperation arrangement aimed at coordinating and building upon Canada's global health research activities. The Global Health Research Initiative (GHRI) marks a first in Canadian history bringing together the knowledge, experience, and resources of overseas development agencies, the Canadian Health department, and the major federal health research funding agency of Canada.

Activities in the program are:

- ❑ the Canadian International Immunization Initiative (CIII), a CIDA-funded initiative in partnership with the World Health Organization, the United Nations Children's Fund (UNICEF), the Pan American Health Organization, and the Canadian Public Health Association was initiated in 1998 to increase and intensify routine immunization for all children of the world. Initiated in September 2003, phase two of CIII provides research grants through a competitive peer review process to increase access to and enhance immunization services in CIDA's priority countries.
- ❑ the HIV/AIDS Clinical Trials Capacity-Building Grants program draws on Canadian expertise to help develop and build the capacity of African researchers and research institutions to conduct planned and anticipated trials in Africa on

the development of prophylactic vaccines, microbicides, and other preventative HIV interventions. With an initial investment of \$3 million provided by CIDA, the program awarded two-year grants in early 2007 to joint African–Canadian teams.

- ❑ The Teasdale–Corti Global Health Research Partnership program is fostering international partnerships and collaboration to promote the generation and effective communication and use of relevant health research in low and middle income countries (LMICs), as well as training and supporting researchers to address health priorities of these countries. Initial investments of \$12.7 million were provided by IDRC and CIHR. Among its activities are competitive grants to international teams composed of Canadian and LMIC researchers and research users for innovative programs combining applied research, knowledge translation, and capacity building. The first 12 grants were awarded in February 2007. The projects include the creation of new programs by a team of Canadian, Jamaican, and Kenyan researchers to strengthen nurses' capacity to deal with the HIV/AIDS pandemic, and a Canadian–Mexican collaboration to look at the emerging problem of childhood obesity. In addition, competitive training and career awards and opportunities — the Global Health Leaders Grants — are intended for various levels of researchers.
(www.idrc.ca/en/ev-94787-201-1-DO_TOPIC.html)

Health Canada

Health Canada has been a long-standing supporter of the Centre's Research for International Tobacco Control (RITC) program, which supports research on effective tobacco control policies and practices. In South Africa, for example, local RITC-supported research convinced the government to implement some of the strictest tobacco control measures ever adopted by a developing country. The consequences of that legislation were truly win-win: when the excise tax was increased from 34% to 50% of the retail price of cigarettes between 1994 and 1998, tobacco consumption dropped 15% while government revenues from tobacco taxes climbed 75%. Success in South Africa inspired similar RITC-supported research in Jamaica.

Networks of Centres of Excellence

In early 2007, IDRC joined with the Networks of Centres of Excellence (NCE) program to support mutually beneficial partnerships between domestic networks and similar consortia abroad. IDRC's contribution to the NCE's International Partnership Initiative (IPI) will fund training and other knowledge-sharing activities by researchers from low- and middle-income countries. This collaboration is backed by IDRC's Challenge Fund, whereby IDRC teams up with Canadian research councils and government agencies to create opportunities for scientists in Canada and in LMICs to join forces to tackle shared challenges. The partnership was announced by then Minister of Industry Maxime Bernier.

Three proposals have been selected to date: from the University of Toronto-based National Initiative for the Care of the Elderly; the Mathematics of Information Technology and Complex Systems network, headquartered at Simon Fraser University in British Columbia; and AllerGen — the Allergy, Genes, and Environment Network administered at McMaster University.

Social Sciences and Humanities Research Council (SSHRC)

On July 18, 2007, IDRC and the Social Sciences and Humanities Research Council (SSHRC) signed an agreement to invest up to \$6.27 million over the next six years to support international research alliances. “Our newly released science and technology strategy provides solutions to issues that matter to Canadians, such as protecting the quality of our environment and improving our health,” said the Honourable Maxime Bernier, then minister of Industry and minister responsible for SSHRC. “The new IDRC and SSHRC partnership will help us deliver on our commitment to support research in areas that will provide long-term benefits.”

The joint program will encourage strategic research in four areas, which mirror IDRC’s programming structure:

- ☐ environment and natural resource management;
- ☐ information and communication technologies for development;
- ☐ the impact of science, technology and innovation policies on development;
- ☐ social and economic policy related to poverty reduction, growth, health and human rights.

University-based experts from Canada and from lower- and middle-income countries will be invited to submit research proposals. Up to nine proposals will receive seed funding to develop a research alliance that involves both Canadian and LMIC researchers and community partners. Three alliances will then be funded to a maximum of \$2 million each over five years. All proposals will be selected through international peer review to ensure they meet the highest standards of excellence.

Statistics Canada

With IDRC and the Economic Commission for Latin America and the Caribbean, Statistics Canada participated in the design of indicators to measure the growing use of ICTs in the region. It also helped elaborate protocols and to build capacity in some countries in the application of the indicators as part of national surveys.

IDRC is collaborating with DFAIT and Industry Canada in preparing the presentation of results during the next interministerial conference on telecommunications to be held in El Salvador in October 2007.

Statistics Canada, on behalf of IDRC, also provided South Africa's Department of Science and Technology with technical assistance for the design, analysis, and implementation of research and development (R&D) surveys in such a way as to ensure internationally comparable information.

Where We Work

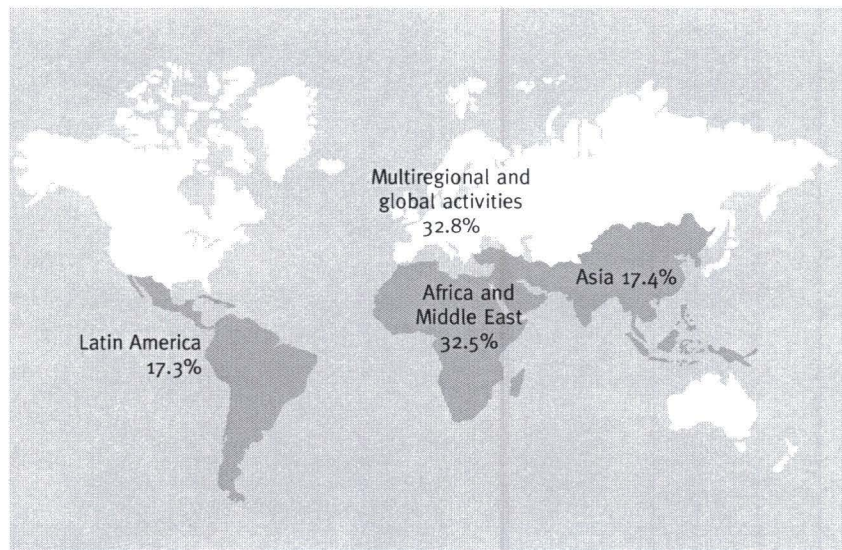
IDRC works mostly in and with developing countries in Africa, Asia, the Middle East, and Latin America and the Caribbean. In addition to its head office in Ottawa, IDRC has regional offices in Cairo, Dakar, Montevideo, Nairobi, New Delhi, and Singapore.

More than merely administrative outgrowths of headquarters, these offices represent a significant strategic asset and are part of IDRC's personality as an institution. Their role of providing a regional perspective to the Centre's programs and nurturing partnerships and resource expansion activities in the regions where IDRC works, as well as promoting the dissemination of research results, is essential to the effective management of the Centre's program matrix.

Average regional distribution of IDRC's research funding over the past five years (2002/03–2006/07) was: 32.5% for Africa and the Middle East, 17.3% for Latin America and the Caribbean, and 17.4% for Asia. Global and multiregional activities over that period averaged 32.8%.

IDRC's staff come from over 60 different countries on all continents.

IDRC's Regional Presence



Annex 1

IDRC Board of Governors and Senior Staff

(as of August 31, 2007)

Mary Coyle, Acting Chair (since August 14, 2007), Antigonish, Canada
Vice President and Director, Coady International Institute, St Francis Xavier University;
former Executive Director, Calmeadow, Toronto

Maureen O'Neil, President, IDRC, Ottawa, Canada
Former President (interim), International Centre for Human Rights and Democratic
Development; former President, The North-South Institute

Lalla Ben Barka, Dakar, Senegal
Regional Director, UNESCO Africa; former Deputy Regional Director, United Nations
Economic Commission for Africa

Jocelyn Coulon, Montréal, Canada (*on leave*)
Visiting Researcher, Centre d'études et de recherches internationales de l'Université de
Montréal (CÉRIUM) and Director, CÉRIUM's Réseau francophone de recherche sur les
opérations de paix; former Director, Pearson Peacekeeping Centre, Montréal campus

Angela Cropper, Trinidad and Tobago, West Indies
Co-founder and President, The Cropper Foundation; former Co-Chair,
Assessment Panel, Millennium Ecosystem Assessment

Ged Davis, Sevenoaks, United Kingdom
Deputy Chairman, EcoCities plc; former Managing Director, Centre for Strategic
Insight, World Economic Forum

Denis Desautels, Ottawa, Canada
Executive-in-Residence, School of Management, University of Ottawa;
former Auditor General of Canada

Ahmed Galal, Cairo, Egypt
Managing Director, Economic Research Forum; former Executive Director and
Director of Research, Egyptian Center for Economic Studies

Robert Greenhill, Gatineau, Canada
President, Canadian International Development Agency; former Visiting Senior
Executive, IDRC, and former President and Chief Operating Officer, Bombardier
International

Amina J. Ibrahim, Abuja, Nigeria

Senior Special Assistant to the President of Nigeria on the Millennium Development Goals; former National Coordinator, Education for All, Federal Ministry of Education, Nigeria

W. Andy Knight, Edmonton, Canada

Professor, International Relations, Department of Political Science and Coordinator/Advisor, Peace and Post-Conflict Studies Program, University of Alberta; past Vice-Chair of the Academic Council of the UN System and editor, *Global Governance Journal*

Barbara McDougall, Toronto, Canada

Advisor, international business development, corporate governance, and government relations, Aird & Berlis; former Secretary of State for External Affairs and Minister of Employment and Immigration

Pratap Bhanu Mehta, New Delhi, India

President of the Centre for Policy Research; former Professor of Government at Harvard University and Professor of Philosophy, Law and Governance at Jawaharlal Nehru University

Faith Mitchell, Washington DC, United States

Senior Program Officer, Institute of Medicine, National Academies; former Deputy Director for Special Projects, Division of Behavioral and Social Sciences and Education, National Research Council

Andrés Rozental, Mexico City, Mexico

President, Mexican Council on Foreign Relations; former Ambassador of Mexico to the United Kingdom, and Deputy Foreign Minister

Francisco Sagasti, Lima, Peru

President, FORO Nacional/Internacional; former Chief of Strategic Planning, World Bank

Linda Sheppard Whalen, St John's, Canada

Editor, *The Newfoundland Quarterly*, and President and Chief Executive Officer, Centre for Long-term Environmental Action in Newfoundland and Labrador

Xue Lan, Beijing, The People's Republic of China

Executive Associate Dean, School of Public Policy and Management, and Executive Vice President, Development Research, Academy for the 21st Century, Tsinghua University; former Assistant Professor, Engineering Management and International Affairs, George Washington University

Biographies of Board Chair and Senior Staff

Biographical notes about all IDRC Governors can be found at www.idrc.ca/en/ev-33688-201-1-DO_TOPIC.html/ . Biographies of IDRC Senior Management can be found at www.idrc.ca/en/ev-61498-201-1-DO_TOPIC.html/. Abbreviated biographies of IDRC's Chairman, President, and two Vice-Presidents follow.

Mary J. Coyle, Acting Chair of the Board (since August 14, 2007)

Present position – University Vice-President, St. Francis Xavier University, Antigonish, Nova Scotia (since 2001); Director, Coady International Institute (since 1997).

Other positions – Consultant, Rural and Small Towns Programme, Mount Allison University (1996); Executive Director, Calmeadow, Toronto (1992-1996); Program Director, Calmeadow (1986-1992); Rural Development Advisor, Sulawesi Regional Development Project, South Sulawesi, Indonesia (1984-1986); CUSO co-operant, Ministry of Commerce and Industry, Botswana (1980-1982).

Other information – BA, French, University of Guelph (1978); MA, Rural Development (1984).

Maureen O'Neil, President (since 1997)

Other positions – President (interim) and Chair, International Centre for Human Rights and Democratic Development (1996-1997); partner, Institute on Governance (1995-1996); President, The North-South Institute (1989-1995); Deputy Minister, Ministry of Citizenship, Government of Ontario (1987-1989); Secretary General, Canadian Human Rights Commission (1986-1987); coordinator, Status of Women Canada (1978-1986).

Other information – BA, Sociology, Carleton University (1964); Honorary Doctor of Laws Degree, Carleton University (1999), Wilfred Laurier University (1997); and A.D. Dunton Alumni Award, Carleton University (1986). Member (1989-1998) and Chairwoman (1993-1995), Board of Governors, Carleton University; member, Advisory Board to the Minister of Foreign Affairs (1995-1997).

Rohinton Medhora, Vice-President, Program and Partnership Branch (since 2002)

Other positions – Joined IDRC in 1992 as a program officer in the Economic and Technology Policy Program. Has since led two Program Initiatives on international economic relations, and on poverty and adjustment policies. He also served as Chair of the Technical Advisory Committee of the Centre's Research on International Tobacco Control secretariat. Assistant Professor of Economics, University of Toronto (1988-1992). Former intern at the International Monetary Fund and consultant for the World Bank's Economic Development Institute. Worked in community newspapers in Washington and Toronto.

Other information – BA, MA, PhD in Economics, University of Toronto (1988).

Denys Vermette, Vice-President, Resources and Chief Financial Officer (since 2003)
Other positions – Vice-President, Corporate Services (2000) and Director, Human Resources, for the Canadian Nuclear Safety Commission (1996). Has occupied executive-level positions for the past 15 years, leading teams in human resources, finance, information technology, communications, and strategic planning.
Other information – Certified Human Resources Professional and BSC, University of Manitoba and Le Collège de Saint-Boniface (1975).

Annex 2

Acronyms

AIDS	Acquired Immunodeficiency Syndrome
APAIR	Asian Partnership for Avian Influenza Research
CA	Connectivity Africa
CCAA	Climate Change Adaptation in Africa
CIDA	Canadian International Development Agency
CIHR	Canadian Institutes of Health Research
DFID	Department for International Development (UK)
EEPSEA	Economy and Environment Program for Southeast Asia
DFAIT	Department of Foreign Trade and International Affairs
GDP	Gross domestic product
GHRI	Global Health Research Initiative
HIV	Human Immunodeficiency Virus
HPAI	Highly pathogenic avian influenza
IAEH	International Association for Ecology and Health
ICA	Institute for Connectivity in the Americas
ICTs	Information and communication technologies
ICT4D	Information and Communication Technologies for Development
IDRC	International Development Research Centre
IICA	Inter-American Institute for Cooperation on Agriculture
IMFNS	International Model Forest Network Secretariat
LMIC	Low- and middle-income countries
NCE	Networks of Centres of Excellence
NGO	Non-governmental organization
NRCan–CFS	Natural Resources Canada–Canadian Forest Service
OAG	Office of the Auditor General
OECD	Organisation for Economic Co-operation and Development
RWG	Refugee Working Group
SIGA	Sistema Integrado de Gestión Ambiental (Integrated System for Environmental Management)
SMEs	Small and medium enterprises
SSHRC	Social Sciences and Humanities Research Council
TEHIP	Tanzania Essential Health Interventions Project
UN	United Nations
VSAT	Very Small Aperture Terminal
WSIS	World Summit on the Information Society (Geneva, 2003; Tunis 2005)

Excerpts from the *International Development Research Centre Act (1970)*

2. “(R)esearch” includes any scientific or technical inquiry or experimentation that is instituted or carried out to discover new knowledge or new means of applying existing knowledge to the solution of economic and social problems.

“(S)cience” includes the natural and social sciences.

4. (1) The objects of the Centre are to initiate, encourage, support and conduct research into the problems of the developing regions of the world and into the means for applying scientific, technical and other knowledge to the economic and social advancement of those regions, and, in carrying out those objects
- (a) to enlist the talents of natural and social scientists and technologists of Canada and other countries;
 - (b) to assist the developing regions to build up the research capabilities, the innovative skills and the institutions required to solve their problems;
 - (c) to encourage generally the coordination of international development research; and
 - (d) to foster cooperation in research on the development problems between the developed and developing regions for their mutual benefit.
- (2) The Centre, in furtherance of its objects, may exercise any or all of the following powers in Canada or elsewhere, namely, the power to
- (a) establish, maintain and operate information and data centres and facilities for research and other activities;
 - (b) initiate and carry out research and technical development, including the establishment and operation of any pilot plant or project, to the point where the appropriate results of the research and development can be applied;
 - (c) support or assist research by governments, by international, public or private organizations and agencies, or by individuals;
 - (d) enter into contracts or agreements with governments, with international, public or private organizations and agencies, or with individuals;
 - (f) sponsor or support conferences, seminars and other meetings;
 - (i) expend, for the purposes of this Act, any money appropriated by Parliament for the work of the Centre or received by the Centre through the conduct of its operations.
5. (1) The Chairman of the Board shall be appointed by the Governor in Council to hold office during pleasure for a term not exceeding five years.

- (2) The...President shall be appointed by the Governor in Council on the recommendation of the Board to hold office during pleasure for a term not exceeding five years.
 - (3) Each of the governors, other than the Chairman and the President, shall be appointed by the Governor in Council to hold office during pleasure for such term not exceeding four years....
 - (4) Any retiring governor is eligible for re-appointment to the Board...
7. (1) The President is the chief executive officer of the Centre and has supervision over and direction of the work and staff of the Centre.
10. (1) The Chairman, the Vice-Chairman and nine other governors must be Canadian citizens.
- (2) At least eleven of the governors must have experience in the field of international development or experience or training in the natural or social sciences or technology.
11. (1) There shall be an executive committee of the Board consisting of the Chairman, President and at least five other governors annually elected from the Board by the governors in such manner that a majority of the members of the committee are Canadian citizens.
- (2) The executive committee shall exercise such of the powers, and perform such of the functions, of the Centre as the Board may by by-law assign to it and shall submit at each meeting of the Board minutes of its proceedings since the last preceding meeting of the Board.
- (4) The executive committee shall meet at least four times in each year.
13. The Board may appoint advisory or other committees under such terms and conditions as the Board may by by-law prescribe.
14. Subject to the by-laws, the Board may appoint such officers, agents and employees as are necessary for the proper conduct of the work of the Centre.
16. (1) The Board shall meet at least twice in each year....
- (2) The Chairman shall preside at meetings of the Board.
17. The Board may, with the approval of the Governor in Council, make by-laws respecting
- (a) the constitution of advisory or other committees appointed pursuant to section 13...
 - (b) the duties and conduct of officers, agents and employees of the Centre;
 - (c) the conditions of employment and the remuneration of officers, agents and employees of the Centre;
 - (f) generally the conduct and management of the affairs of the Centre.

18. (1) The Centre is not an agent of Her Majesty, and, except as provided in subsection (2), the governors and the officers, agents and employees of the Centre are not part of the Public Service.
- (2) The officers and employees of the Centre shall be deemed to be employed in the Public Service for the purposes of the Public Service Superannuation Act and the Centre shall be deemed to be a Public Service corporation for the purposes of section 37 of that Act.
20. (1) The Centre shall establish, under its management in a bank, an account to be known as the International Development Research Centre Account, in this section called the *Account*.
21. The accounts and financial transactions of the Centre shall be audited annually by the Auditor General of Canada and a report of the audit shall be made to the Centre and to the Minister.
22. (1) The Chairman shall, within four months after the termination of each fiscal year, submit to the Minister a report relating to the activities of the Centre for that fiscal year, including the financial statements of the Centre and the report thereon of the Auditor General of Canada.
- (2) The Minister shall cause the report submitted under subsection (1) to be laid before Parliament within fifteen days after the receipt thereof by the Minister or, if Parliament is not then sitting, on any of the first fifteen days next thereafter that either House of Parliament is sitting.

By-Laws of IDRC

14. (1) There shall be a Finance Committee of the Board consisting of at least three governors elected annually by the Board.
- (2) The members of the Finance Committee shall elect one of their number to act as Chairman of the Committee.
- (3) The Finance Committee shall determine the manner in which any money or securities of the Centre are to be invested or held and shall undertake such further responsibilities as are from time to time assigned to it by the Board.
- (4) The Finance Committee shall meet at such times and places as it deems necessary or at the request of the Board, the Chairman or the President.
- (6) At each meeting of the Board, the Finance Committee shall submit minutes of its proceedings since the last preceding meeting of the Board and shall report to the Board on money invested on behalf of, and securities held by, the Centre.



Feeding the Sustainable City

Thanks to pioneering research initially led by IDRC, many Southern cities are now re-examining their attitude to urban agriculture. The challenge they face is how to control agricultural activity so that it can be integrated into the city environment for the benefit of the urban farmers and the rest of the city's population.

"Urban agriculture (UA) is associated with urban land squatting and is viewed as a socioeconomic problem, not a solution. Authorities are hesitant to be more proactive on UA because it is largely seen as resulting from a failure to address adequately rural development needs." Mayor Fisho P. Mwale, Lusaka, Zambia

RESEARCH THAT MATTERS

The Development Challenge: Can agriculture succeed in the urban environment?

The cities of the South are growing fast as people move from the countryside to seek a better future. So fast that the municipalities cannot keep up with the influx. There are too few jobs and limited facilities. Many of these new arrivals face poverty and malnutrition, often spending three-quarters of what little income is available to provide just one meal a day.

"Urban agriculture has several advantages.... It increases urban food security (produce from rural areas is expensive and less fresh) and creates sources of income. UA also reduces open space maintenance costs to local government."

Mayor Christopher Iga, Kampala, Uganda

In an effort to improve their situation, many of the urban poor use any available space to grow more food. From rooftops to window boxes, on

roadsides, riverbanks, and vacant lots, people will find places to grow a little food to feed their families. Some even manage to grow enough to sell the surplus, providing much needed income. For others, especially on the outskirts of the city, farming becomes their main occupation and may provide support for an entire family or group of families.

City administrators have traditionally opposed this uncontrolled activity. These urban farmers often take over public spaces or private lands, and disputes over the use of land can lead to violence. There may also be health hazards if the soil or water used is contaminated. Keeping livestock in the densely populated areas may create a variety of risks.

IDRC: B.L. Wilson



Thanks to pioneering research initially led by Canada's

Urban farming in Nairobi, Kenya.

International Development Research Centre (IDRC), many Southern cities are now re-examining their attitude to urban agriculture (UA). The challenge they face is how to control agricultural activity so that it can be integrated into the city environment for the benefit of the urban farmers and the rest of the city's population.

The Idea: What's old is new again

Farming in the city is not a new practice. There is ample evidence in the remains of ancient cities around the world to show that agriculture was once a normal part of city life. Cities were designed to incorporate the production of food, fodder, medicinal plants, and even building materials. If it worked then, why not now? Instead of trying to ban agriculture in the city, why not encourage it? Persuade the urban farmers to organize and become more efficient, help them find and share available space, provide support for food processing and marketing, create effective rules and regulations, and provide facilities

that will enable them to contribute to the city's sustainability and food security. It was an idea whose time had come — again.

The Research: Maximizing the potential of urban agriculture

IDRC was the first major international agency to support formal research in the field of urban agriculture more than 20 years ago. The approach has been to try and maximize the potential for UA to improve household food supply, incomes, and health by removing some of the constraints — such as outdated

Urban Agriculture experiences in Latin American and Caribbean cities ... reveal that it is possible to use local resources and technologies to help reduce the costs of urban economies and improve the standards and the quality of life of the population.

From The Quito Declaration, Ecuador, April 2000

by-laws and restrictive regulations — and at the same time improve the management of waste, water, and land. To achieve this the researchers focused on both policy and technology, bringing researchers, politicians, and technocrats together with the producers to develop effective policies and

practical solutions. They also helped create networks of cities to promote the sharing of ideas, technology, and results. And the Centre worked to bring UA research into the mainstream through collaboration with other donor organizations, as well as with academic institutions and nongovernmental organizations (NGOs).

On the Ground: Sowing the seeds of sustainable urban development

In the last two decades IDRC has disbursed some CA\$9 million on over 90 UA projects in more than 40 countries. Here are just a few examples:

- Representatives of 20 Latin American and Caribbean cities met in Quito, Ecuador, to discuss the potential of UA. All the city mayors signed the Quito Declaration in support of UA. More than 50 cities have now signed the declaration.

- The Sustainable Dar es Salaam Project in Tanzania's capital city (co-funded with the UN-HABITAT program) led to a new strategic urban development plan for the city, and policies for integrating UA into improved management of the city's environment.
- In Uganda, the Kampala Structure Plan was revised to include UA as a legitimate land use and an Urban Agriculture Unit was set up under the Kampala City Council administration.
- A research team, made up of staff and students from several Ghanaian universities, studied three cities in Ghana and determined urban waste composting really does offer a win-win situation for urban farmers and municipalities. It found that UA, combined with landscaping and other uses, could absorb as much as 20 % of the cities' organic waste.
- In several cities, in both Africa and Latin America, sites that were unsuitable for food production are now used to cultivate flowers instead. Sale of the flowers, often for export, provides the income families need to purchase food.
- In Port-au-Prince, Haiti, partnering with local and international NGOs, researchers set up demonstration gardens that incorporated organic waste. Some 1 100 people in 68 groups were trained to set up and operate gardens. The concept worked so well that in three years the project had expanded to 19 districts from the three originally planned.
- Near Amman, Jordan, researchers developed a wastewater recycling system that allows "greywater" from household uses to be reused in home gardens. Initial water savings were estimated to be at least 15 %, and the use of greywater in market gardens has increased household incomes by 10 %.



IDRC

Growing herbs for food and sale in Amman, Jordan.



IDRC: Louise Guénette

Seniors garden in downtown Quito, Ecuador.

RESEARCH THAT MATTERS

The Impact: Into the mainstream

What was once seen as a novel area for research has now become mainstream, with projects funded by major United Nations, international, and national agencies, as well as NGOs. Following the Quito example, city networks have formed in both East and West Africa to share experiences and training opportunities. By-laws and regulations are being rewritten to accommodate and encourage UA and to ensure the equitable distribution of land. Aerial surveys have enabled cities to create maps showing where space is available, and which areas are best suited for agriculture, with access

Even in the most densely developed areas of the city there is still unused potential for UA. Mushrooms can be grown in trays indoors, fish can be raised in tanks, trays of silkworms can provide income, and medicinal herbs can be cultivated in containers and processed in the home.

to organic waste for composting and safe water supply. Schools, businesses, and public buildings are creating garden plots for students and workers.

Many universities in the South now include UA in their curriculum, creating a cadre of professionals schooled in UA techniques. And UA was on the agenda at the third World Urban Forum in Vancouver, Canada, in 2006.

Future Challenges: Growing tomorrow's green cities

Regional city networks must continue to grow as more and more cities realize the benefits that UA can bring. As new enabling legislation and comprehensive city plans are introduced, it is important to ensure that training is provided for city staff who must implement the new rules. More needs to be done to increase public

Bountiful crops from backyard gardens in Brazil.



IDRC: Louise Guénette

awareness of the positive contributions made by UA. There is also a need for more education for producers on key issues such as safe use of pesticides and the dangers of contaminated soil and water. This can best be achieved working through formal producers' organizations. Such organizations can also help to ensure fair distribution of land and resources, and security of tenure.

Canada's International Development Research Centre (IDRC) is one of the world's leading institutions in the generation and application of new knowledge to meet the challenges of international development. For more than 35 years, IDRC has worked in close collaboration with researchers from the developing world in their search for the means to build healthier, more equitable, and more prosperous societies.

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The Future of Africa is Mobile

Personal digital assistants (PDAs) are often used as scheduling tools in developed countries, but IDRC-supported researchers are showing how wireless PDAs can improve healthcare delivery in Africa.

"Just start thinking about the PDA as a computer. It's got more computing power than the spaceship that first went to the moon."

Holly Ladd, Executive Director, SATELLIFE

RESEARCH THAT MATTERS

The Development Challenge: Improve access to medical information

In Uganda, as in other African countries, doctors and healthcare workers often don't have access to the current health and medical information they need to effectively treat patients. This has been particularly true for health professionals working in remote rural locations without electricity or access to fixed-line telephones. It can be challenging for them to gain access to updated treatment guidelines for diseases such as HIV/AIDS, or country-specific essential drug lists. It can also

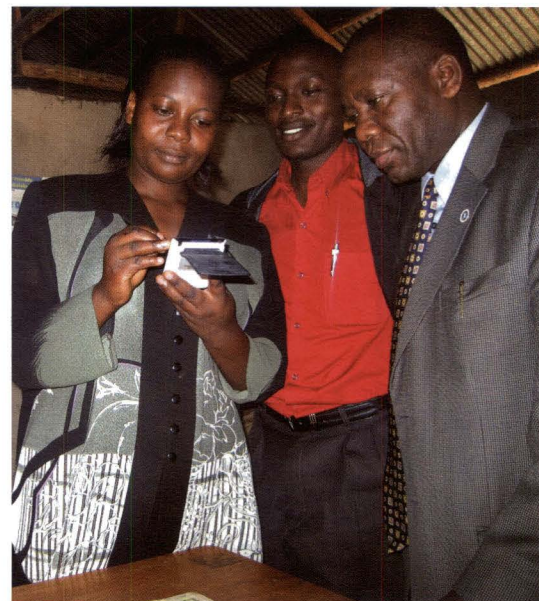
"We took immediate action [when we learned of a typhoid outbreak reported via PDAs] – typhoid education about cleaning the water, asking people to boil water."

Gulabla Katumba,
Medical Officer in Charge, Kalisizo Hospital, Rakai District

take months before epidemiological surveys, done on paper, are input into a computer in the capital city of Kampala. This limits how quickly the healthcare system can respond to disease outbreaks. The nongovernmental organization SATELLIFE thought that PDAs could bring the power of a computer into areas without electricity — particularly if the PDAs had wireless connectivity.

The Idea: Harness wireless technology

Local Global System for Mobile Communications (GSM) cellular networks have become well-established in Uganda. In fact, national teledensity has increased by 350% since the first network went live in early



IDRC: R. Fuchs

Midwife Veronica Ndagire Herman is one of 206 healthcare workers in Rakai District to receive a PDA.

1995. So, while many rural villages lack power, they do have cellular coverage. SATELLIFE and Uganda Chartered

HealthNet (UCH) wanted to capitalize on this dramatic new development by piloting an affordable, durable approach to two-way electronic communication that would make use of the GSM telephone network.

The Research: Testing a new health network

PDAs were used to send and receive information and data via "Jacks," relay devices created by WideRay, Inc. of California. The Jacks are battery-operated units that contain a GSM cellular transceiver and a data cache; each Jack can support up to 1 000 handheld units. The Jack communicates with a server located at UCH headquarters in Kampala by making

cellular phone calls, and with the handheld units via their infrared beam. When users “beam” to the Jack, information is uploaded and downloaded. Twenty Jacks were installed at strategic locations in two pilot districts, Mbale and Rakai. Healthcare workers used the Jacks to download information, such as medication alerts or guidelines, as well as to upload information, such as survey results or email consultations with other healthcare workers.

PDA's were also loaded with information that is usually found only in medical reference libraries so that physicians in remote areas could diagnose illnesses, determine treatment, and prescribe medication. SATELLIFE and UCH deployed 200 Palm m130 handheld computers with the necessary accessories and ancillary equipment. Canada's International Development Research Centre (IDRC) supported the pilot project, which ran from 2003 to 2004, with a contribution of CA\$962 731. A second phase of research, also supported by IDRC, is ongoing and some 150 additional PDA's have since been dispatched.

On the Ground: Trial and error point to improved approaches

Jacks were installed in healthcare facilities in the Rakai and Mbale health districts. Research revealed several problems with the original model, including dropped calls and unnecessarily long connection times. This led to the development of an improved model, the WideRay SP320 Jack, which eliminated most of the problems associated with the previous model.

The lack of electricity to charge PDA's proved a major challenge in several healthcare facilities. This problem was solved by introducing solar chargers.

Training in how to use PDA's was provided to 206 health workers in Rakai, 140 in Mbale, and 40 from Marie Stope Uganda (MSU) and the Joint Clinical Research Centre.

The Impact: A new wireless network for Uganda's healthcare workers

The technology has proven to be robust and easily adoptable by both UCH and end users, and has yielded measurable cost savings and improvements in data quality and availability. Rakai and Mbale Districts and PDA users reported that they have seen an improvement in both the timeliness and accuracy of data reporting as a result of the project and users have increased their demands for additional content and services (email and power supply). A team of experts from Makerere University found that the network was less expensive by about 25% than the traditional paper-and-pen approach for data collection. The Uganda Ministry of Health has said it is now interested in providing PDA's throughout the health sector.



SATELLIFE: B. Gebre



UJIN: P. Okello

Training in how to use a PDA was provided to more than 300 health workers in Rakai and Mbale Districts.

RESEARCH THAT MATTERS



SATELLITE: B. Gebru

Future Challenges: Making PDAs widely available and expanding the network

Africa has proved to be a profitable market for mobile phones, yet the market for PDAs remains untested. Although many healthcare workers have become convinced of the usefulness of PDAs, the technology is difficult to purchase in Africa at reasonable prices. Setting up a retail outlet in Uganda could test the market. Researchers are discussing this option with manufacturers. Researchers are also undertaking to build an alternative to the Jack to reduce equipment costs and make it more affordable to expand the network.

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After the Water Wars: The Search for Common Ground

After 32 failed attempts to reach consensus on water legislation and a deadly social conflict over water rights, IDRC-supported researchers in Bolivia have helped their country develop a water law that everyone could agree on.

"Our country cannot afford the luxury of having legal norms that are repealed or abolished days or months after being approved."

Juan Carlos Alurralde,
Agua Sustentable

The Development Challenge: Turn conflict into collaboration for policy-making

Water has always been a controversial issue in Bolivia. Water is a scarce commodity in much of the Andean country – and in other regions where there is ample rainfall, access to water is hotly contested. It has been extremely difficult to find agreement on how the resource should be regulated and who should have legal rights to it. The Government of Bolivia has made 32 attempts to achieve consensus on a comprehensive new water law — one that would update a law with colonial roots that has been on the books since 1906. None were accepted.

In 1998, the issue of water rights came to a boiling point when the Bolivian government proposed legislation that allowed for the privatization of water and provided a private, foreign-owned company, Aguas del Tunari, with a concession to sell water in Cochabamba. The company paid nothing for the water concession, which was given without regard to the customary users of the water. For the first time in recent Bolivian history, social groups mobilized in protest. By 2000, the country was paralyzed by blockades; lives were lost in riots; the government was destabilized and facing political crisis. Bolivia's "Water War" hit the front pages of newspapers worldwide. The government was forced to break the contract with Aguas del Tunari and to promise more open debate on the issues. An official special council, the Consejo Interinstitucional del Agua (CONIAG), was created at the suggestion of civil society and social organizations, and was charged with drafting a water management law based on public consultation. This was an unusual gesture: Bolivia had rarely sought public input into policy-making.

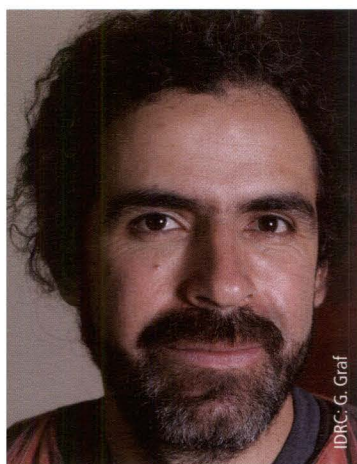
For Bolivian water engineer Juan Carlos Alurralde (known as Oso Andino), the creation of CONIAG represented a unique opportunity



Harvesting potatoes on the shores of Lake Titicaca.

to find a "made in Bolivia" approach to water management. Alurralde is Director

of Agua Sustentable, a nongovernmental organization (NGO) that had been focusing on water issues. Agua Sustentable is a research arm of the Comisión para la Gestión Integral del Agua en Bolivia (CGIAB), a network of NGOs, research organizations, and civil society groups. Experienced in working with both social groups and the Bolivian government, he was convinced that dialogue based on solid research could help point to a fair and efficient model for water management that everyone could accept. However, mistrust was riding extremely high between social groups and the government; no one was underestimating the challenges of finding a path to mutual agreement.



IDRC: G. Graf

"Lack of social consultation today leads to social unrest tomorrow."

Juan Carlos Alurralde

The Idea: Combine grassroots dialogue with high-tech science

By using a state-of-the-art mathematical model, researchers could simulate how effective various approaches to allocating water rights would be — information critical to developing a new water law. However, researchers also understood that while the government had experts who could evaluate the research, social groups did not. If social groups did not trust the research, there was a risk that they would reject the findings. So, the researchers decided to include social groups that had protested the water law in the research process — by inviting them to participate in the research design, asking them to help gather data, and regularly communicating and explaining their findings. In effect, the researchers would be using both technical and social science in their approach. Canada's International Development Research Centre (IDRC) supported the research project, which ran from 2002 to 2005, with a CA\$270 000 grant.

The Research: Analyze two hotly debated approaches

Researchers used a water simulation model developed by the Danish Hydraulic Institute to build a computerized replica of selected Bolivian water systems, taking into account seasonal changes. They fed the model with existing cartographical information and data on water, precipitation, and climate. A Geographic Information System (GIS) was used to map water rights. A database of existing customary (or traditional) water rights was also developed through lot-by-lot field work and surveys. Members of irrigators' groups and farmers were involved in collecting this data. Information was used to project which approach to water management would be most efficient: the one favoured by the government or the one Indigenous communities believed would be best.

On the Ground: Clarifying the debate

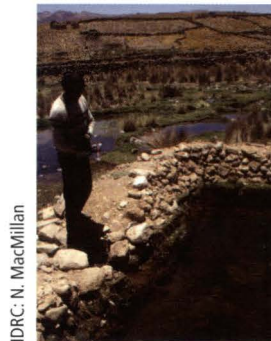
Research issues, methods, and results were discussed and then developed with the participation of a broad range of social actors, including researchers, members of grassroots social movements and NGOs, government technicians, academics, and senior government officials.

Researchers simulated two scenarios: granting concessions by unit of volume per time (litres per second) for specific uses and managing water according to the traditional uses and customs currently in place, based on collective ownership of water for multiple uses. Researchers also estimated how much water was lost, for example through filtration and leaks.

Research revealed that the approach favoured by the government (volume per time) would lead to a more inefficient use of water and cause larger differences in water availability between communities, actually resulting in water deficits in many cases.

The Impact: Water rights are defined in law

On 8 October 2004, the Government of Bolivia promulgated law number 2878 — ley numero 2878, de Promoción y Apoyo al Sector Riego. The law takes into account Agua Sustentable's research by recognizing traditional water rights and uses, and guarantees rights to water for irrigation for Indigenous and farming communities. It has gained widespread acceptance. By regulating rights for one of the major uses of water in Bolivia, the approval of Law 2878 is a huge stride toward formulating a general water law. It is also one of the first times that evidence-based research has been used as the basis for legislation in Bolivia. Moreover, the passing of the law also illustrates that water policy need not be an issue that necessarily leads to conflict.



IDRC: N. MacMillan

RESEARCH THAT MATTERS

Implementation of the law

A second phase of the project began in April 2005 with a primary focus on testing the methodologies under more complex conditions in order to develop the regulations that will permit implementation of the law and ensure that this legislative mandate produces practical benefits. One of the first actions of the new government, elected in late 2005, was to create a water ministry to coordinate and oversee water issues. Members of the Agua Sustentable team were active both in articulating public pressure to have the ministry created, the actual design of the ministry, and in assuming key roles within the ministry after its formation. The first vice-minister for basic services, for instance, is from the Agua Sustentable team. Researchers are testing and fine-tuning the procedures for identifying and registering legal claims to water. This will permit a registry of traditional water rights to be created so that Indigenous peoples, peasants, and small farmers can exercise their ancestral claim to use the resource.

Tangible Benefits: Water rights key to economic development

Economists and other development specialists agree that well-defined and secure property rights for water and other resources are key to ensure economic growth, equity, and sustainable resource use. By using state-of-the-art GIS and helping establish a common data base to register water rights, this new technology provides a very cost-effective way to guarantee Bolivian smallholders their traditional rights to water, help eliminate conflicts, and give them the confidence to make productivity-enhancing investments on their land.

Water is a scarce commodity in much of Bolivia.



IDRC: N. MacMillan

Future Challenges: Extend the approach

Researchers need to examine if the approach developed by Agua Sustentable can be extended to solve other conflicts over water or used in other countries. In addition, Law 2878 provides for a new authority in charge of granting water rights. Agua Sustentable is investigating how the tools developed in the research project could be adapted so that a research-based approach can be applied to international waterways.

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Making Waves

A small IDRC-supported project has helped spawn a mass movement to bring the benefits of information and communication technologies to rural villages in India.

"From my long experience in agriculture, I find that whenever poor people derive some benefit from a technology, rich people benefit. The opposite does not happen."

M.S. Swaminathan,
key architect of India's
green revolution

RESEARCH THAT MATTERS

The Development Challenge: **Reaching the unreachable**

India's information technology sector emerged during the 1980s as software development companies became established in the cities of Bangalore, Chennai, and Hyderabad. The country is now the world's second largest exporter of software. Yet, the bulk of India's population lives in rural villages, in poverty. How can the information age bring benefits to those who live on less than US\$1 a day?

This was a question that nagged at M.S. Swaminathan more than 15 years ago. He believed that a well-placed computer, like a communal well or an irrigation pump, could be a valuable tool for development. However, in 1990 there were no models for how information and communication technologies (ICTs) could help the rural poor in India. The father of the "green revolution" that staved off famine in India 40 years ago, M.S. Swaminathan set

**Mission 2007 will
bring the knowledge
revolution to 600 000
Indian villages.**

out to build a model for a pro-poor, human-centred information revolution in rural areas. Canada's International Development Research Centre (IDRC) was the first donor to support this vision with project funding to the M.S. Swaminathan Research Foundation (MSSRF). In addition to a modest grant, IDRC also provided the MSSRF with information about how ICTs were being used for development in other regions.

The Idea: Information is wealth **(if it's in local currency!)**

Computers, the Internet, mobile phones, interactive CD-ROMs, newspapers, the radio — ultimately all are powerful tools for sharing information. Researchers thought that highly practical, local information could make a dramatic difference in the lives of the ultra-poor living in rural areas. The research question was: what kind of information would be most useful and in what format?

Researchers also thought that a model of community ownership of ICTs (as opposed



IDRC: N. Lessard

to private ownership) would work well in rural India's villages. They also believed that new technologies offered new possibilities for addressing the infrastructure problems plaguing rural India — it would simply be a matter of creative engineering. Ultimately, the researchers were also confident that anyone can learn how to use ICTs if given a fair chance. They based their project on the Gandhian principle of “attention to the poorest person.”

The Research: Creative technological fixes and social innovations

An ingenious hybrid of wired and wireless technologies was conceptualized by Venkataramen Balaji, the project leader and a graduate of the Indian Institute of Technology at Kampur. A “hub and spokes” model for connectivity was fleshed out by project researchers. One village, selected to be the “information hub” was able to connect to the Internet and download relevant information, such as weather reports. This village then conveyed the information through a local area data/voice network to village knowledge centres (VKCs) set up in six other nearby communities. To deal with limited access to electricity, researchers also developed ways to systematically use solar technology for power.

Researchers conducted surveys to gather data on information use patterns from six different locations covering about 12 000 people over a period of 18 months. Researchers also assessed how far the community was willing to go in operationalizing village knowledge centres. They also identified volunteers who could interpret information and make it more user-friendly — for example, by putting complex jargon into simpler terms.



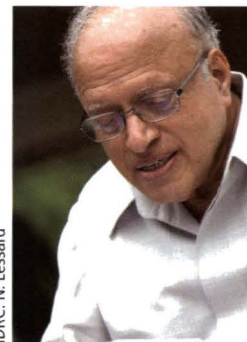
IDRC: N. Lessard

On the Ground: Creating change in villagers' lives

VKCs were initially set up in five villages, with the community providing the space for the centres. In Villianur, the network's hub, volunteer staff produced, translated, and updated information fed to other villages through the network. At least half of the volunteers are women.

Locally specific databases were created, some with the help of experts such as doctors. Database information was related to prices of agricultural inputs (such as seeds or fertilizers), market prices, government programs, health care, cattle diseases, transport (road conditions, cancellation of bus trips), and weather (appropriate time for sowing, locations of abundant fish, ocean wave heights). Educational material was loaded onto CD-ROMs.

Traditional communication technologies were also used: a community newspaper was created and information is also conveyed over village loudspeakers.



IDRC: N. Lessard

M.S. Swaminathan

RESEARCH THAT MATTERS

The Impact: "Like fish to water"

The project has illustrated that "rural people, particularly women, learn new skills very quickly and take to technology like 'fish to water', whether it is computer or hybrid-seed technology, or aquaculture," according to M.S. Swaminathan. The asset-less, ultra-poor are among the major users of the village knowledge centres.

"India is home to the highest number of disadvantaged people, but at the same time we have the technology and the tools to correct this imbalance. I assure you that Mission 2007 has the full support of the IT industry."

Saurabh Srivastava, Founding Trustee, Nasscom Foundation (National Association of Software and Service Companies)

The project is making livelihoods more secure, sustainable, and safe, and is helping villagers to develop new skills. For example, each

evening in a coastal village in Pondicherry, women download information on likely wave heights. This information, available on the Web site of the US Naval Oceanographic Office, is then broadcast throughout the village by loudspeakers. The fishers thus get accurate information on sea conditions before they set out in their wooden boats — lifesaving information. In fact, on 26 December 2004, a village knowledge centre in Pondicherry was used to blare out warnings of the impending Asian tsunami. All villagers made it to safety and no lives were lost.

Future Challenges:

Extending the vision to all of India

In 2004, the research project led to the "National Alliance for Mission 2007" a grassroots movement to bring the benefits of the knowledge revolution to 600 000 villages by 15 August 2007 — the 60th anniversary of India's independence. The idea is to replicate the model created in Pondicherry. The Government of India committed the equivalent of CA\$28 million to this initiative in its March 2005 national budget.

The village knowledge centre in Pondicherry.



IDRC: N. Lessard

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A Global Vision for Small Business in Egypt

Once overlooked and undervalued, small-scale businesses are now front and centre as Egypt takes bold steps to transform its economy, with the strategic support of the SMEPol project and research backed by IDRC.

"Most developing countries, including Egypt, lack a robust and dynamic medium enterprise sector similar to the one that emerged in East Asia, hence suffering from what is known as 'the missing middle' syndrome."

Egypt's Ministry of Finance in *Enhancing Competitiveness of SMEs in Egypt: General Framework and Action Plan*

RESEARCH THAT MATTERS



The Development Challenge: Help small businesses join the global economy

Big business is often seen as the ticket to a country's economic growth. Particularly in the past century, large-scale firms capable of mass-producing goods or services have been the symbol of a "modern" economy. By this measure, Egypt's economy has seemed locked far in the past. The country's private sector is dominated by a plethora of small businesses: farmers, furniture makers, tailors, potters, metal workers, and restaurant owners. The list is long and varied but all businesses share a common characteristic: they rarely employ more than 10 people. In most cases, they employ four people or fewer — 93% of the non-agricultural private sector employs one to four people.

However, in the late 1990s, the Government of Egypt started asking: rather than depend on a few big firms to increase exports and create jobs, why not make a massive effort to lift thousands of tiny enterprises into growth? Egypt had been favouring big business in its policies. Yet, the country's small-scale

Egypt: a nation of entrepreneurs.

entrepreneurs work doggedly to earn a living in the face of numerous obstacles. They don't have access to credit services so they build personal networks to obtain loans based on trust. They lack marketing channels, so they make use of personal contacts with merchants and suppliers. In the struggle to keep their businesses alive, they rarely have the time to look into how new approaches or technologies could make their enterprises more efficient. But if constraints were removed and new opportunities created, could Egypt's small and medium-sized enterprises (SMEs) surge forward?

It is a vision that holds promise — a way to boost the economy and create jobs for the hundreds of thousands of disenchanted youth who swell the ranks of the unemployed every year. However, turning this vision into reality requires a careful blueprint and an almost seismic shift in thinking. The Government of Egypt turned to Canada for support in generating relevant research that could lay the groundwork for change. In 2000, the Small and

Medium Enterprise Policy development project (SMEPol) was created, with the support of Canada's International Development Research Centre (IDRC) and the Canadian International Development Agency.

The Idea: Short-term change and long-term gain

Egypt's business environment has often been referred to as extremely "unfriendly." To cite just one example: it used to take up to a year for an entrepreneur to get a business license — a process that takes mere days in countries such as Canada. In fact, according to the Ease of Doing Business index produced by the World Bank and International Financial Corporation, Egypt's policy environment is considered highly unfavourable. Out of 155 countries indexed, Egypt is ranked at 141. SMEPol therefore

"SMEPol is the only organization making a difference toward coherent SME policy in Egypt."

Ahmed Salem,
Cooperative Society
for Small Industries

used research to determine how policies, regulations, and legislation could be changed in order to create a friendlier environment for SMEs. With a view to the long term, SMEPol also focused

on training and mentoring Government of Egypt staff on how to develop effective SME policies.

The Research: Turning ideas into action

Researchers and consultants engaged by SMEPol analyzed Egypt's business environment and existing policies in order to pinpoint clear and specific actions for making improvements. Focusing on issues designated as priorities by the Government of Egypt, they developed recommendations for action-oriented policy reforms. Researchers took into account issues related to gender equality, the environment, and child labour in all their work. Recommendations for policy reforms were made directly to the Minister of Finance. SMEPol then supported the policy formulation process, in part by providing urgently needed analysis upon request. In addition, researchers examined the capacity of institutions in Egypt

to implement measures to promote SME growth. SMEPol's focus on policy development has been complemented by work to share research results, promote dialogue among stakeholders, provide training, and improve research tools.

On the Ground: Policy development, research tools, training, and awareness-building

- Researchers undertook a range of studies on how to create a general framework for SME development, improve SME access to financial services, increase government procurement from SMEs, and reform regulations to make compliance easier and less costly. Research also focused on strategies for increasing exports.
- Through workshops, focus groups, and seminars, researchers heard from SME owners and identified their common constraints. Researchers also communicated findings to a range of stakeholders. Various print and electronic publications were also developed to raise awareness of the issues and create a common focal point for discussing policy remedies.
- To bring Government of Egypt staff up to speed, a comprehensive training and mentorship program was undertaken. Formal training programs were complemented by international and local study tours. Senior project staff provided mentoring to help officials acquire the knowledge, skills, and attitudes necessary for SME policy-making.
- Consultations with a broad range of stakeholders were held in 15 governorates. SME owners had the opportunity to learn about the government's new directions for supporting SMEs and to talk about the services they require.
- Researchers provided improved sources of information for evidence-based policy-making by publishing their research studies, providing relevant statistics, and creating information databases.

istockphoto: U. Aäro



Small businesses dominate Egypt's private sector.

RESEARCH THAT MATTERS

The Impact: Creating a better business environment

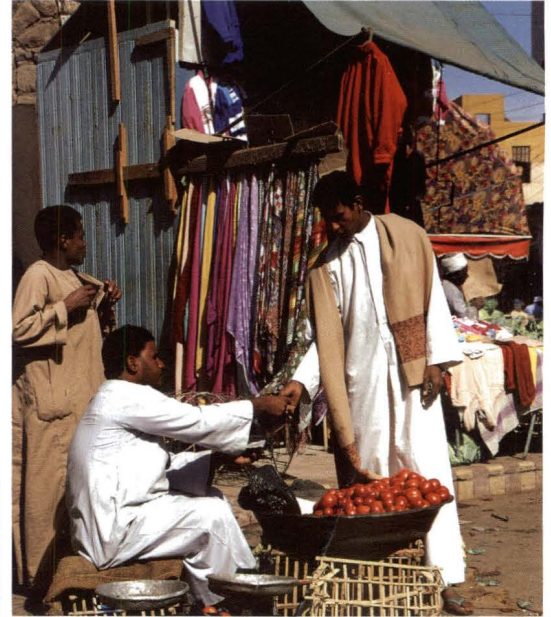
SMEPol's research has informed the Government of Egypt's efforts to bring about significant policy changes. For example, a more favourable regulatory framework is being developed, revisions to the income tax regime were enacted, a thorough assessment of the informal sector was initiated, and changes to the Tender Law were made. The Prime Minister has directed the Minister of Finance to develop additional venture capital opportunities for SMEs.

Moreover, based on SMEPol's work, a coherent new vision for SME development has been endorsed and adopted: *Enhancing Competitiveness of SMEs in Egypt: General Framework and Action Plan*. This is a first. While there had been successful initiatives undertaken by several actors in the field of SME development in Egypt, these efforts had been largely scattered, uncoordinated — if not conflicting — and isolated. The new framework addresses this problem by setting out broad parameters for how to promote the growth of SMEs. It also details concrete measures (along with timelines) that will help SMEs become competitive in the global marketplace. The institutional framework needed to implement the action plan was established through a ministerial decree.

Future Challenges: Repeat the process

As Egypt strives to reduce unemployment and increase exports by making SMEs more competitive, it will also blaze a trail for other countries grappling with similar challenges. IDRC is now considering how the approach used by SMEPol could be replicated elsewhere in Africa and the Middle East.

The goal is to promote the growth of SMEs



Photodisk: H. Ibrahim

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Tobacco and Taxes: A Winning Strategy

IDRC, with funds from Health Canada, supported an economic study that helped the Jamaican government rebut the tobacco industry's arguments against higher taxes on cigarettes, in the process breathing new life into the country's tobacco control strategy.

"The research is showing that an increase in taxes to an optimum level, approximately 70% of the retail price, would have a win-win effect both in terms of reducing tobacco consumption and in increasing revenue."

Eva Lewis-Fuller, Director of International Health, Jamaican Ministry of Health

RESEARCH THAT MATTERS

The Development Challenge: **Reduce tobacco use without threatening government revenues**

Tobacco consumption is a major global public health threat. Current figures place the global annual tobacco-related death toll at 5 million. That count is expected to double to 10 million annually by 2020, if current trends continue. By 2030, 70% of deaths attributable to tobacco will occur in developing countries. One in two smokers will die prematurely as a result of tobacco use, many in their productive middle years.

To counter these effects, the World Health Organization (WHO) introduced the Framework Convention on Tobacco Control (FCTC). Unanimously adopted in May 2003 by WHO member states, the treaty entered into

force in February 2005 when it was ratified by 40 countries. At the present time, more

than 100 countries have signed or ratified the treaty. The FCTC outlines measures relating to the reduction of both supply and demand for tobacco. The demand-side prescriptions include raising tobacco prices through an increase in excise tax, creating smoke-free public places, requiring health warning labels on tobacco packages, restricting advertising, promotion, and sponsorship by tobacco companies, and initiating programs to help smokers quit. The Convention also aims to reduce the supply of tobacco products by advocating restrictions on tobacco sales to minors, curbing the illicit trade in tobacco, and promoting alternative crops for tobacco growers.

Expectations for the measure's social impact are also high — less people smoking means a healthier population.

However, countries that want to support the aims of the FCTC at the national level face some obstacles. For example, many governments seriously consider the arguments of the tobacco industry that increased tobacco taxes deplete government coffers both by reducing the number of smokers and by encouraging the creation of tobacco black markets that are outside the reach of the tax department.

In Jamaica, the economic spin-offs were a major consideration for a government contemplating raising taxes on tobacco. While the Ministry of Health was in favour of exploring such options, the Ministry of Finance was reluctant. Jamaica has experienced economic stagnation since 1980, accompanied by heavy bouts of high inflation. Two-thirds of the government's total expenditures go toward servicing its foreign debt. It therefore wanted to be sure that raising tobacco taxes would not create further economic harm.

The Idea: Good research as the foundation for effective public policy

Jamaica's rate of tobacco use has been falling, but before the government could use economic policy to further reduce tobacco use, it wanted to be certain of the economic consequences. One study (later seen as deficient) conducted locally had supported the industry position that the economic effects of raising tobacco taxes would be negative.

As part of its ongoing support to Jamaica's Ministry of Health in the area of tobacco control research, and with funding provided by Health Canada, the International Development Research Centre (IDRC) through its Research for International Tobacco Control (RITC) program, twinned the Jamaicans with a research partner from South Africa, to analyze the economic impact of increasing the cigarette excise tax as an appropriate tobacco control strategy.

The study was produced by Corné Van Walbeek, a senior lecturer at the University of Cape Town's School of Economics in collaboration with Eva Lewis-Fuller and her colleagues in the Jamaican Ministry of Health. Van Walbeek is an expert in the economics of tobacco control, whose previous RITC-funded work has influenced tobacco-control policy in South Africa. His familiarity with the South African situation allowed for interesting South-South comparisons and knowledge sharing between Jamaica and South Africa.

The Research: Clarifying the economics of tobacco control

International research shows that increasing the price of cigarettes is the most cost effective of all interventions in reducing the demand for tobacco products. It was once believed that the addictive nature of tobacco made this commodity an exception to the microeconomic principle that higher prices will invariably lead to lower demand. However, data from a large number of empirical studies proves that this is not the case. Higher prices influence demand for tobacco in two ways: by influencing current smokers to quit or smoke less, and by dissuading nonsmokers from starting. Evidence suggests that teenagers are more sensitive to price influences than adults, which implies that higher prices will be a strong factor in discouraging youth from starting smoking.

Van Walbeek constructed economic models using Jamaican data to examine the potential impact of a rise in excise tax on both tobacco sales and government revenue. These projections showed that increasing tobacco taxes from the current level of 52% of the market price to around 72% would both increase government revenue from tobacco by roughly 50%, while at the same time decreasing demand by nearly 40%. This is described as a "win-win" situation with both positive public health and economic effects.

This scenario is supported by practical experience in other countries. South Africa, for example, increased excise tax from 34 to 50% of the retail price of cigarettes between 1994 and 1998. The results were a 15% aggregate decrease in tobacco consumption, a decrease in per capita consumption of 20%, and a 75% increase in real government revenues from tobacco taxes.

On the Ground: A roadmap to a place where good health and finances meet

The economic report has had a direct impact upon government policy.

In April 2005, Van Walbeek and Lewis-Fuller met with numerous stakeholders in Jamaica, including policymakers, academics, tobacco-control advocates, and the media, to discuss the project's findings. The research was particularly well received by representatives from the Ministry of Finance. The government has accepted and acted upon the report's recommendation that there should be incremental increases on tobacco taxes, leading to the point where tobacco taxes ultimately account for 70% of the retail price of the product (a proportion similar to that in some European countries). In April 2005, the government announced its new policy and the first of a series of planned tax hikes on tobacco products. The first tax increase raised the price of cigarettes by 8 to 10%.

The release of the report, *The Economics of Tobacco Control in Jamaica: Will the Pursuit of Public Health Place a Fiscal Burden on Government?*, also provided the occasion for a public forum on the subject. This was an opportunity to explain to the public and several journalists the win-win nature of the new tax regime.



Less people smoking means a healthier population.

RESEARCH THAT MATTERS



IDRC: N. Male

The Impact: An expected pay-off in finances and public health

It is too early to determine whether the actual financial and public health results of the new tobacco tax measure will match the economic projections contained in the report. However, the expectation is high — given experiences elsewhere — that government revenues will rise and cigarette consumption will fall. The decrease in smoking is also anticipated to have another spin-off economic effect, as fewer smoking-related illnesses lead to a lesser economic burden on the health system. Expectations for the measure's social impact are also high — less people smoking means a healthier population.

Future Challenges: Proceeding on more fronts

The Jamaican Ministry of Health is interested in publishing the study's results in booklet form, to further disseminate the findings, not only among relevant government ministries in Jamaica, but throughout the greater Caribbean region.

As well, Jamaica is now well positioned to implement other tobacco-control measures prescribed in the FCTC, which Jamaica ratified on 7 July 2005. These future actions include a ban on tobacco advertising and legislation in support of smoke-free public spaces. It is expected that public support for such measures will be high, given the country's disproportionately large anti-tobacco lobby (in relation to its small population size) and the active role of the Jamaican media in discussing the health effects of tobacco use. IDRC is currently supporting a study on tobacco-related healthcare costs in Jamaica.

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Escape From a Toxic “Catch-22”

IDRC-supported research is turning the tide against the use of highly toxic pesticides that have increased potato yields at the expense of people’s health in the poverty-stricken highlands of Ecuador.

“You cannot find solutions sitting behind a desk. You have to start at the base, in the community. It’s our job to open a road. But this road will belong to the farmers, not to us. So we have to work with the farmers.”

Fadya Orozco, International Potato Center

RESEARCH THAT MATTERS

The Development Challenge: Open a path to a win-win solution

Highly toxic pesticides that are banned in many developed countries are being widely used by potato farmers in Ecuador. Pesticides containing carbofuran (used to control the Andean weevil) and methamidophos (used to combat foliage pests) are the cheapest products on the market in the South American country. Agrochemical companies can make

pest control, crop yields are likely to be cut in half and they won't be able to provide for their families. But the pesticides are taking a terrible toll on farmers' health. They affect the brain, for example, gradually fogging thinking to disabling levels. Decreased mental capacity makes it harder for farmers to make good decisions about how to run their farms productively.

Researchers at the Southern-based International Potato Center (CIP) wanted to find a path out of this "Catch-22." Mental capacity and other neurobehavioural functions will return if exposure to the toxic chemicals is reduced. However, when faced with a choice between their health and their immediate need to earn a livelihood, poverty-stricken farmers would trade off their health.

With support from Canada's International Development Research Centre (IDRC), CIP researchers undertook to find a win-win solution. However, toxic pesticides had been heavily, and unsafely, used since the 1960s. Farmers thought they couldn't do without them and that they weren't so harmful. Researchers would have to go up against a belief system that had been reinforced for decades.

The Idea: Start a journey of discovery

Researchers wanted to ensure people understood how pesticides were affecting their health so they could get across messages about how to use toxic chemicals safely. They administered simple, but effective, neurological tests and made sure the results were clearly communicated to the community. Researchers also thought that integrated pest management (IPM) could provide new directions. IPM does not rely exclusively on pesticides. By using other techniques, such as pest traps, farmers are able to use safer pesticides in lower quantities — an affordable option. Researchers used a sophisticated computer model to predict that



IDRC: D. Cole

Researchers studied the economic impacts of pesticide use. good profits while undercutting the price of safer pesticides because the patents on these early generation pesticides ran out years ago. The chemical formulas are freely available.

For farmers earning \$5 a day in the province of Carchi, the low price of these "red label" pesticides makes them attractive. Without

IPM would help keep costs low and production high. But for farmers, “seeing is believing.” So researchers set up farmer’s field schools to teach IPM. That way, farmers could experiment with the approach — without taking risks with their own potato crop. Policymakers were informed of all that was learned.

The Research: Mapping the social and physical environment

Researchers took an ecosystems approach, examining health and the social and environmental factors that affect it. This was key to developing interventions that could effectively create change. Researchers tested farmers’ health and studied their attitudes, knowledge, and practices. They looked at the economic impacts of pesticide use, and the contamination of ground and surface water, as well as of home areas. Farmers’ field schools were set up in three communities and a range of public education activities were launched. Researchers from a range of disciplines worked together on the project.



More Carchi farmers are wearing protective clothing when spraying pesticides.

On the Ground: Shifting perspectives and opening new directions

- Researchers took a health history of farmers who volunteered to participate in the research, did a focused medical exam, and administered a series of tests recommended by the World Health Organization (WHO).
- Researchers found two-thirds of those tested were suffering neurological damage.
- Phosphorescent dye was used so farmers could see how pesticide residue could be tracked into homes, and passed between family members.
- At farmers’ field schools, farmers learned how to use weevil traps, various strains of blight-resistant potatoes, and lower-toxicity pesticides.
- Women’s groups were informed about the safe use of toxic pesticides and children’s awareness was raised through such means as puppet shows.
- A 1999 workshop on pesticide use, involving representatives from government, industry, and communities resulted in a Declaration for Life, the Environment, and Production in Carchi.
- A 2001 national forum on pesticides brought together representatives from many government ministries, farmers’ organizations, and the pesticide industry. Farmers delivered a presentation on the impact of pesticide use on their health.



IDRC: Y. Beaulieu

RESEARCH THAT MATTERS

Farmers using IPM
grew as many or more
potatoes as farmers
using toxic pesticides.

The Impact: A new movement begins

Farmers using IPM grew as many or more potatoes as farmers using toxic pesticides, and spent less money to do so. The production costs in IPM test fields were US\$80 per tonne, compared to US\$140 per tonne. Significantly, the mental capacity of farmers using IPM returned to normal — likely one pivotal but hidden factor in the increased yields. The use of IPM has consequently shot up in Carchi and the use of toxic pesticides dropped. Among participating farmers, the amount of fungicide used for light blight decreased by 50%, while the quantities of insecticide used to control the Andean weevil and leaf miner declined by 75% and 40%, respectively.

More Carchi farmers are wearing protective clothing when spraying pesticides. Two-thirds of the families participating in the project purchased protective equipment — made available through the project. They had previously thought it was too expensive and inconvenient, but learning of the impact of toxic pesticides on their health shifted their perspective. Farmers are also voicing their concerns about pesticides to their government and the pesticide industry itself.

Future Challenges: Create greater momentum

While farmers' field schools are effective they are too few to reach the entire farming population of Carchi. There is also strong pressure by commercial interests to do things as they have always been done. The early innovators who have adopted IPM can create change by influencing neighbours to also use these techniques — especially as their income and health improve. However, this movement



IDRC: Y. Beaulieu

needs support to grow. There is a role for various levels of government and the pesticide industry. Ultimately, researchers believe pesticides classified as highly toxic by the WHO need to be restricted or banned but barring that, they recommend that pesticides be taxed in order to raise their price.

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Behind Closed Doors

IDRC-supported researchers shed light on a murky subject: just how much does it cost countries to join the World Trade Organization?

"Paradoxically, for a rules-based organization, the WTO has no clear rules for the 'price' of membership."

Simon J. Evenett,
University of St Gallen

Favourable access
to foreign markets
— a WTO benefit.



IDRC: Y. Beaulieu

The Development Challenge: Determining the price of WTO membership

Just what's involved in joining the World Trade Organization (WTO)? The organization is the heart of the global trading system — the multilateral institution that sets out the rules for trillions of dollars in international trade each year. Countries that become members gain predictable and favourable access to foreign markets. Being part of the WTO also brings other benefits that are particularly attractive for developing countries. For example, WTO membership amounts to an unofficial “seal of approval” that could be used to attract foreign investment. There is no shortage of countries wishing to join: 26 are currently seeking to join the WTO, two observer governments must start the accession process in the near future, and another three economies have requested that working parties be established. The majority of these are developing countries.

However, no newcomer to the WTO can be accepted into the club without the agreement of the existing membership. And to benefit from being part of the WTO, applicant countries must also pay a price — for example by liberalizing markets. It's a quid pro quo system that lies at the heart of the powerful trading organization. But exactly what price must be paid? Paradoxically for a rules-based organization, there are scarcely any rules to define what the accession terms might be. This has led to accusations that WTO negotiations amount to a one-sided power play in which concessions are squeezed from weaker countries to their detriment. How much is the accession process about balanced negotiation and how much is it about new members bending over backwards to fulfill the needs and interests of existing WTO members?

Are latecomers, eager to join the WTO, being asked to make more concessions than their predecessors who joined the trading system earlier? Is the process taking longer, becoming more complicated, and costing more than it is worth? Do developing countries actually have any bargaining power when it comes to negotiating the terms of their accession? There are strong views on these issues, but not much research. In fact, with the exception of the important case of China, the subject of WTO accession has barely been studied. Few papers have been written on the impact on the economic performance and social well-being of the other 19 economies that have joined the WTO since 1995.

This struck Simon J. Evenett, a research economist based at the University of St Gallen in Switzerland, as a remarkable omission. He thought objective research on the accession process could be very useful information for developing countries seeking to join the WTO. It could also inform a debate he felt was taking place in something of an information vacuum.

The Idea: Reveal what happened behind closed doors

With support from Canada's International Development Research Centre (IDRC), the research team took a detailed behind-the-scenes look at the process five countries used to prepare for WTO accession. The researchers delved into the way that developing countries organized for accession: the preparations they made, the challenges they faced, and the advice they were given. The team conducted a thorough analysis to help determine what, if anything, each country under study had gained from accession and what it cost them. They wanted to illustrate whether or not the benefits achieved were linked to the way countries prepare for accession negotiations — and to capture any lessons learned.

The Research: Comparing the costs

A methodology was fleshed out for systematically gathering information so that the costs and benefits of WTO accession could be compared across countries. Researchers then used this approach to examine both the legal and economic outcomes of accession for developing countries. In particular, researchers wanted to shed light on whether or not the price of accession has been getting higher over time.

On the Ground: Examining the WTO accession process

Researchers produced five studies examining the WTO accession process in Cambodia, Ethiopia, Jordan, Nepal, and Viet Nam. Researchers first set out the facts, in detail, concerning the evolution of the countries' trade flows and recent macroeconomic performance. Then, using two economic methodologies, they examined how national exports and imports changed after accession. Extenuating circumstances were factored into their analysis; for example, researchers considered issues such as transportation and communications infrastructure. They then made a comparative legal analysis of three of the accessions plus the experiences of Angola,

which joined the WTO as an original member at the end of the Uruguay round.

A legal scholar looked at market access commitments for agricultural products, nonagricultural products, and services. These obligations were compared to existing government practices and other measures, such as market access commitments made by other WTO members at similar stages of development.

Researchers from each country documented the administrative capacity to prepare for accession. For example, they studied the human resources required to monitor trade policy developments and formulate the requisite national trade policies.

Research findings were shared at a World Bank-sponsored workshop held at the United Nations' Palais de Nations in Geneva. More than 100 members of Geneva's trade community attended.

The Impact: The need for technical assistance

Researchers found that countries applying for WTO membership face a complex and long process and they often need to implement substantive reforms to align their domestic institutions and policies with WTO disciplines. The process takes little account of the specific circumstances or needs of developing countries.

Researchers found that there are no standard terms for accession to the WTO. Bulgaria, Ecuador, and Jordan followed similar processes but the exact terms of accession for each of these new members is very different.

They also confirmed anecdotal evidence that more recently acceded members take on more, deeper, and broader commitments than original members. Would-be members are now asked to cut their tariffs well below the levels implemented by poor nations that joined the world trading system earlier. Moreover, existing WTO members — both rich and poor — often demand that applicants subject themselves to tighter rules than they themselves obey.



IDRC: P. Jackson

Needed: predictable terms for shipping goods to markets.



IDRC: N. McKee

What are market access commitments for agricultural products?

RESEARCH THAT MATTERS



IDRC: R. Charbonneau

Exports to existing markets increase with accession.

Whether these conditions produce the standard benefits that applicant countries expect remains, to a large extent, an open question. The researchers note that new WTO members have been part of the organization for so little time — and that their trade experience is so diverse — that making a general assessment of the gains and losses that accompany

membership is extremely difficult. In a quantitative analysis of Ecuador and Bulgaria's trade performance, however, the research team found that, while exports to new markets were not boosted by WTO accession, exports to existing foreign markets did rise. In addition, the researchers remarked that economic reforms required by the WTO benefit new member countries by helping to bring balance-of-payments problems under control.

Whether the benefits of WTO accession are worth the sacrifices is also determined partly by how negotiations unfold. However, most developing countries do not have the capacity to engage effectively in these negotiations because, they lack trained personnel and face institutional and financial constraints.

In that regard, the research pointed to the need for an effective, ongoing program of advice and assistance to countries seeking to further integrate into the world economy. It also identified the need for poor countries to have the possibility of shipping goods to Western markets on more predictable terms, and of receiving better designed and executed technical assistance.

The research was summarized by the World Bank and published as part of their Trade Note series. The research is also being used to support an internal World Bank proposal for additional technical assistance for countries considering or involved in WTO accession. Additionally, the research results have been shared with audiences in Viet Nam (a country involved in the accession process) as part of a World Bank Institute training course. The work was also shared at a large multicountry meeting on the issue organized by the German development agency GTZ that took place in Berlin in November 2004.

Future Challenges: Defining commitments

This WTO accession project calls on members of the WTO to clearly outline the costs of membership and to streamline burdensome accession procedures; if this is not done, the process risks creating second-class citizens out of new members.

Is the current degree of legal definition of the WTO accession process satisfactory?

More work is needed to establish the nature of specific commitments made by new members. At this point, it is difficult to satisfactorily establish whether new WTO members are being asked to take on specific commitments that differ markedly from the obligations and rights of original WTO members.

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Making the Most of Minimal Water

The IDRC-supported *WaDImena* project is helping countries in the parched MENA region share lessons on how demand management can avert a looming water crisis.

"Water conservation requires behavioural change at the societal level, which in turn needs careful, long-term plans of action."

Naser I. Faruqi, in *Water Management in Islam*

RESEARCH THAT MATTERS

The Development Challenge: Overcoming an acute and worsening water shortage

Low annual rainfalls and a low per capita volume of renewable water resources make the Middle East and North Africa (MENA) region the most water-scarce area in the world. Experts say that countries with less than an annual 500 cubic metres of water per person have reached the “water barrier” — a critical line below which it becomes difficult to survive. Several MENA countries have already fallen below the water barrier, while others hover close to the line.

Population growth and development trends in the area make it likely that this dire situation will worsen. High population growth rates, increased urban migration, and the high proportion of youth within national populations all point to an explosion in the demand for water. Economic players — such as industry, a growing tourism sector, and irrigation-dependent agriculture — will also contribute to rising pressure on water resources. When this escalating demand meets a fixed and meager water supply, which becomes further depleted with increased use, it will almost certainly dampen the prospects for economic development and increase poverty in the region.

There is a pressing need for WDM programs to ensure that less water is used with greater impact.



IDRC: P. Bennett

The Idea: Water saved equals water increased

There is a growing sense that dealing with the region's water crisis must involve more than increasing water supply through megaprojects such as seawater desalination. There is also a pressing need for water demand management (WDM) programs to ensure that less water is used with greater impact. Preventing water waste is, in effect, a cheaper and sensible way of increasing the available water supply.

WDM programs take many forms. It often involves using poorer quality water for particular uses, or changing the timing of water use to avoid losses. For example, treated “greywater,” (lower-quality water from sinks and bathtubs), may be used to water plants and irrigate crops, thus reducing demand for freshwater. Altering water use schedules — so that supplemental irrigation is done at night when there is less evaporation — will also save water. Using new, smart, and appropriate technologies such as drip irrigation and low-flow faucets and toilets is another way of reducing water use.

Reforming the pricing and valuation of water delivery is another aspect of water demand management. Raising water tariffs to bring them closer to the actual cost of delivering water may bring several benefits — for example, higher fees may ensure consumers rationalize their water consumption patterns. Increasing tariffs may also generate more revenue to fund improvements of the water system. Maintaining infrastructure, such as old and leaky water pipes, may have a dramatic impact on increasing the water supply.



The Middle East and North Africa are the most water-scarce areas in the world.

There are some difficulties for MENA countries regarding water pricing and tariffs. Some believe that paying for water disregards a religious edict that decrees water as a divine gift. It is important to differentiate between paying for water itself, and paying for the delivery of water services.

The Research:

Networking for broader impact

Canada's International Development Research Centre (IDRC) has been promoting WDM as a centerpiece of water policy in the MENA region since the early 1990s, partly through funding a series of forums that have attracted the participation of regional water experts, directors-general of government ministries, and government ministers. There's a growing awareness of WDM in the MENA region, but this has not been occurring widely enough, or strongly enough to avert the looming water crisis.

The Water Demand Initiative, or *WaDImena*, is a five-year (2004–2009) intra-regional, multidonor program designed to address this problem. Coordinated and funded by IDRC, with financial support from the Canadian International Development Agency and the International Fund for Agricultural Development, *WaDImena*'s goals are to transfer knowledge and communicate comparative experiences between countries, to influence policy processes with targeted research, and to

build capacity to strengthen and expand WDM programs in the region. Members include Algeria, Morocco, Tunisia, Egypt, Jordan, Lebanon, West Bank and Gaza, Syria, and Yemen.

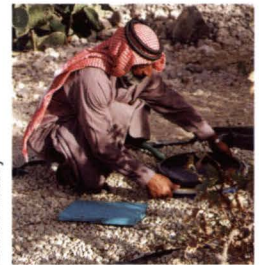
The transfer of knowledge and lessons from previous successes needs to take into account the different climatic, socioeconomic, political, and religious contexts of each country. The aim is to give governments, research institutes, and nongovernmental organizations (NGOs) within *WaDImena*'s nine members the tools they need to create and implement WDM programs that fit within context-specific situations.

Capacity-development efforts are geared toward experience exchange, knowledge networking, and regional missions and study tours. *WaDImena* also provides opportunities for young professionals to attend conferences, training and workshop events, and to prepare papers on WDM topics.

On the Ground: Learning from experience

WaDImena builds on previous IDRC research projects in WDM and the lessons learned from four regional forums, conducted between 2001 and 2003. *WaDImena* aims to translate awareness into action with tangible impacts and policy level results.

Applied research in *WaDImena* takes a multistakeholder approach that includes participation by members of government, research organizations, and civil society. Research grants, in eight of the *WaDImena* participating countries, demonstrate water demand management strategies or tools, supported by a cost-benefit analysis and integrated with traditional knowledge. Produced at the community level, this research is intended to be scaled up to the policy level, with the results shared regionally. *WaDImena*



Treated greywater may be used to water plants and irrigate crops.

RESEARCH THAT MATTERS

also incorporates a gender strategy to promote women's participation in water-management discussions, and decision-making processes.

Regional exchanges have, for example, offered lessons to Syrian partners on how Water Users Associations (WUAs) have been used to make water allocation more equitable, dissipate communal tensions over water use, and help manage canal systems. These facilitated missions have communicated lessons from the Egyptian experience with wastewater use, which included different scenarios such as the use of reclaimed water from natural and mechanical treatment plants, as well as the use of mixed water (reclaimed water combined with freshwater). Another mission demonstrated to the Syrians how WUAs in Tunisia have distributed irrigation and drinking water, levied water charges, and helped promote water conservation.

The Impact: Transferring knowledge and building capacity

WaDI*mena* is building a research and knowledge base to improve the practical application of WDM strategies in specific rural contexts, with a special focus on women and the rural poor. It is also supporting skills development, building individual and institutional capacity, promoting networking and partnerships, and encouraging collaborative arrangements between national, regional, and international water governance programs. Resources available on WaDI*mena's* Web site (www.idrc.ca/WaDImena) include a trilingual (English, French, and Arabic) glossary of more than 400 water demand management terms and a virtual library that includes highlights of lessons learned from previous activities.

In late 2005 and early 2006, WaDI*mena* organized a series of Developing Research Capacity workshops for the eight research teams. These workshops aimed to further strengthen applied research proposals submitted to WaDI*mena* on key themes of social and gender analysis, participatory research, monitoring and evaluation, and dissemination of research results. The workshops assisted the teams in designing better quality research projects that will ultimately bring about improvements in water-use efficiency, equity, and sustainability without negatively affecting the poor or marginalized groups.

Future Challenges: Understanding gender and traditional knowledge approaches

One area for future work in WaDI*mena* is to gain a greater knowledge of gender and water issues and to adopt more gender-appropriate research methodologies and analyses in water resources management. Another area for intervention is a more thorough understanding of traditional and indigenous knowledge that women and men have in water-scarce situations, and how this knowledge can be adapted to modern times.

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Reservoirs of Hope

An IDRC-funded shared learning effort helps farmers deliver fresh water — and the prospect of a brighter future — to impoverished villages in China's Guizhou province.

"Water is good; it benefits all things and does not compete with them."

Lao-tse

RESEARCH THAT MATTERS

The Development Challenge: Increase water supplies and decrease workloads

China's remarkable economic growth during recent decades has been largely confined to the coastal areas and major cities. The interior provinces, especially the more mountainous and arid rural districts, have fared less well. Many people in these areas are forced to scratch out a living on rough, hilly, and dry terrain.

One such district is Changshun county, in mountainous Guizhou province, in China's southwest. Here, securing an adequate supply of water has been a chronic problem. Fully 93% of the county is sloping land, and much of the subsurface is porous limestone and dolomite that fails to trap groundwater in accessible underground pools.

Farmers here struggle to manage complex production systems comprising irrigated

and rain-fed rice lands, less productive uplands and grasslands, forested areas, and unproductive land. The water shortage has meant low yields, little crop diversification,

degraded forests, and overgrazed commons. People have been working more just to maintain what little they have. The burden has fallen especially hard on the women, who traditionally have been responsible for many tasks, including collecting water.

Typically, during the dry winter season, village women would awaken in the middle of the night, then would hike two to three kilometres — in the dark — to a place where they would queue, sometimes for hours, to gather enough water for that day's consumption. By the time

Water is scarce in the hilly terrain of Guizhou province.



IDRC: C. Thompson

they arrived back home with their heavy loads, the sun was just rising, yet these women had to face another working day, with insufficient sleep and already exhausted.

The Idea: Mobilize the grassroots

For millennia, China has relied on a system of centralized state control enforced by a large and cumbersome bureaucracy. While many will sing the praises of this system, such a top-down model doesn't always deliver the goods at the local level.

In the early 1990s, Guizhou — one of China's poorest provinces — implemented a government-run water management project, with many facilities being rebuilt or maintained by the state. There was little accountability, however, and no proper management or local control. Throughout the province, the project's effectiveness was limited, and the impoverished villages of Changshun saw few benefits.

Researchers at the Guizhou Academy of Agricultural Sciences (GAAS), funded by Canada's International Development Research Centre (IDRC), decided to try a different

"The idea of "pay for use, pay for service" also helped raise awareness of natural resource values. When villagers used the new water system they knew they had to be aware both of how much water they withdrew and its effects on the overall system."

GAAS researcher
Yuan Juanwen

approach — community-based natural resource management (CBNRM), involving participatory decision-making. CBNRM is based on the notion of shared learning. It assumes that local people who use the natural resources will have a strong vested interest in protecting them. Scientists work directly with these people to try to understand their problems and to help them find the best solutions.

The Research: Hearing from the people

In 1995, the multidisciplinary GAAS team began working with a small number of villages in Changshun. In the beginning the team focused mainly on gathering information. It described and analyzed traditional resource management practices, and it measured the damage already done to the natural resource base of these villages.

The GAAS team then assumed the role of facilitator, and assembled academics and local residents in a guided collaborative process. Together they suggested technical, organizational, and public policy responses to the villages' problems. The exercise devoted much attention to the social aspects of development. Although new practices addressed an array of practical issues — new water sources, irrigation, aqueducts, reservoirs, pipes, and so on — the overall emphasis was on the process, on involving people in decisions about their own development.

On the Ground: User pays

The collaboration was lengthy and painstaking. Not only were technical solutions debated and selected by locals, but these residents themselves built the new water systems. Furthermore, they took "ownership" by

agreeing to regulate it themselves, and to pay for its management and maintenance — on the basis of the quantity of water used. In China, payment for consumption is a radical notion, and in Changshun the innovation ushered in a whole new attitude toward public utilities.

The user-pay approach has subsequently been approved by township and county-level governments for application in other rural areas.

In addition, the GAAS extension work applied the CBNRM technique in other ways, for example, to improve the management of collectively owned forest lands, to build roads and to provide public lighting, and to experiment with a biogas production system.

The Impact: Villages transformed

By joining together in a learning-by-doing process, GAAS and the Changshun farmers achieved a remarkable change in the living standards of these poverty-stricken districts.

Finally having access to reliable water supplies, the farmers diversified their crops and dramatically increased yields. They learned to make more productive use of all their opportunities, for example, by planting fruit trees and berry bushes on the marginal land on the slopes (and, at the same time, discouraging erosion). Today's incomes are higher and food supplies are more secure.

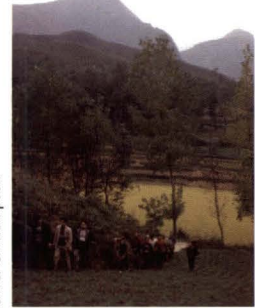
The impact on the lives of women has been particularly dramatic. By saving labour, the water management innovations have made it easier for the women to concentrate on other things. They have taken up new endeavours such as growing fruit trees, mushrooms, or

IDRC: C. Thompson



Farmers and researchers joined together to learn by doing.

IDRC: C. Thompson



The result: higher incomes and secure food supplies.

RESEARCH THAT MATTERS

Local initiatives can solve local problems.

strawberries. What's more, they have learned to market their new crops, and have acquired fresh skills such as accounting, trading, and driving a motorcycle. They no longer carry water though the dead of night.

Future Challenges: Spreading the word

The basic problem in Guizhou was not so much finding new water sources as it was

"Water, everywhere over the earth, flows to join together. A single natural law controls it. Each human is a member of a community and should work within it."

I Ching

mobilizing people to invest in and maintain their own water supply systems. The importance of the Changshun project has been

social rather than technical. It has showed that who makes the investments and who makes the decisions plays a crucial role in the success of natural resource management projects.

In China, the idea that local initiatives can solve local problems is gaining ground. Officials in Changshun county embraced the participatory approach. If new ground really has been broken, the time may be ripe for devolving more decisions about resource use and management to the village level, and for replicating these results elsewhere in Guizhou and in other provinces of the People's Republic.



IDRC: C. Johnson

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The Road to Harmony: How to Share Resources

IDRC, the University of Peace, and dozens of Latin American researchers explore non-violent ways to settle conflicts over nature.

"Peace is a never-ending process ... It cannot ignore our differences or overlook our common interests. It requires us to work and live together."

— Óscar Arias Sánchez,
Nobel Laureate and President,
Costa Rica

RESEARCH THAT MATTERS

The Development Challenge: Learn from discord

On Ecuador's famed Galapagos Islands, fishers, tourists, and conservationists disagree over whether its fish ought to be fished, or photographed, or simply left alone. At Peru's Machu Picchu citadel, a complex web of shifting interests that includes public institutions, private corporations, porters, tourists — even UNESCO — quarrel over how that fragile site ought to be managed. In Bolivia's Cochabamba, poor residents confront the government and multi-

national corporations in a long-running and sometimes bloody dispute over control of the city's water supply.

And so it has gone for millennia, throughout the planet. While groups have often clashed over

religious or ideological differences, many conflicts have been fought also over the natural resources people need for survival. These disputes may have been confined to a simple war of words, or they may have escalated into violent confrontation.

Once upon a time such "socio-environmental" conflicts were regarded as being somehow embarrassing or regrettable, as though they signaled a failure of normal processes. Lately, however, people have been taking a second look at the positive aspects of these disputes. Clearly, understanding the dynamics of these local dramas can teach lessons about how to resolve future environmental conflicts, but these episodes may also suggest non-violent paths to reconciliation around larger social or cultural differences.

The Idea: Learn from collaboration

In the late 1990s, two institutions became increasingly concerned about the socio-environmental conflicts that were emerging in Latin America: Canada's International Development Research Centre (IDRC) and the United Nations' University for Peace (UPEACE), located in Costa Rica.

The so-called stakeholders in these natural resource conflicts included governments, local communities, Indigenous groups, corpora-

tions, and non-governmental organizations (NGOs). To try to settle their differences, many of these stakeholders mustered adversarial techniques such as litigation, civil disobedience, public demonstrations, or outright repression. Activities like these were conducted for the most part in the public eye, and so were "known."

Meanwhile, quieter, collaborative approaches were also being used to mend fences. These methods were less visible and less well understood, and naturally enough they raised questions. For instance, was mediation, negotiation, or reconciliation more likely to lead to success? Would it be more fruitful to appoint, say, a municipal commission or a co-management committee, or to engage in some type of participatory problem solving? To answer such questions, the documentation and analysis of concrete experiences were needed.

IDRC and UPEACE therefore launched an ambitious five-year, two-phase program to gather information about Latin American experiences in socio-environmental conflict resolution where some type of collaborative approach was being tried. The two organizations supported 30 research projects relating to disputes in 11 countries. The program was called Conflict and Collaboration in Managing Natural Resources in Latin America and the Caribbean (or C&C).

The Research: From complexity to clarity

C&C engaged 74 multidisciplinary researchers to tackle a remarkably wide assortment of evolving situations and thorny issues. They examined conflicts that arose as a result of pollution, deforestation, mining and hydro-electric megaprojects, access to or use of protected areas, rural-urban planning and zoning, ownership of traditional lands, and fisheries management.

The program studied interest groups that had clashed over an assortment of ecosystems or "spatial units" — watersheds, coastal zones, Andean highlands, wetlands, protected areas, ethnic or traditional territories, and more. These groups had competed for scarce resources including soil, water, forests, fish, wildlife, salt, oil, copper, and limestone.

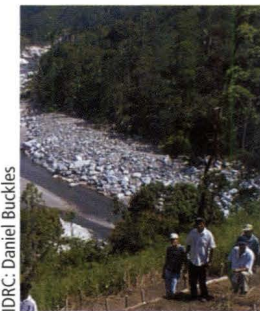
Each of the 30 projects pursued its own local lines of inquiry, which meant that, overall, an

"Non-violence is one way of saying that there are other ways to solve problems, not only through weapons and war. Non-violence also means the recognition that the person on one side of the trench and the person on the other side of the trench are both human beings, with the same faculties. At some point they have to begin to understand one another."

— Rigoberta Menchú Tum, Nobel Peace Prize Winner



IDRC: Jean-Marc Fleury



IDRC: Daniel Buckles

C&C engaged 74 multidisciplinary researchers to tackle a remarkably wide assortment of evolving situations and thorny issues.

abundant variety of questions were asked and types of information gathered. At the same time, each project sought to understand the factors affecting the resolution of its particular dispute, thus contributing to a consolidated panorama showing which mechanisms worked and which did not.

On the Ground: Theory and practice

An important goal of the C&C program was to involve the interest groups themselves in the investigation process. This type of participatory inquiry or “action research” not only focuses on learning practical lessons, but also on contributing to the resolution of the conflicts even while they are under study. The approach makes the most of the fact that scientific activities like analysis, reflection, and dialogue can also help foster collaboration and reconciliation.

Thus this dynamic program evolved over its long lifespan from theory toward practice — from primarily comprising abstract research proposals toward involvement in the context of actual disputes. Meanwhile the program’s frameworks and assumptions changed too.

Early projects tended to focus on the specific interests or resources at issue. Consequently these undertakings adopted a “conflict management” approach, which favours settling each dispute on its own merits using methods appropriate to the situation. Later projects emphasized the broader power relationships among the contenders. These adopted a “conflict transformation” approach, which favours the longer-term pursuit of fundamental structural or political change. The goal shifted, in other words, from merely getting the fighters to shake hands toward addressing the root cause of their quarrel.

The Impact: Building trust

The 30 projects, conducted in an array of Latin American cultures, produced an abundance of material in print and electronic formats (including a children’s picture book bearing an environmental message). The program’s most significant research yield, however, was its rich classification of information about the different collaborative approaches that people have adopted in attempts to resolve various categories of conflict.



IDRC: Daniel Buckles

As often happens with action research, C&C also had an immediate impact on the ground. The dialogue that is the core of the participatory process contributed to the amelioration of several disputes, for example:

- In Costa Rica’s Tempisque River basin, a local organization and a sugar cane company clashed over the use of land in the watershed. The involvement of a C&C partner helped the community and the corporation settle their disagreement, leading to the declaration of an “Area of Natural Heritage,” which better safeguards the wetlands.
- In the Lurín River Valley south of Lima, at the flashpoint where expanding suburbia encroaches upon countryside, diverse public and private stakeholders collided over whether the valley should be urbanized or kept “green.” Initially, those seeking to preserve the valley held a weaker position, but the C&C partner’s blend of education and dialogue helped restore the power balance. Now, the competing interests have achieved a measure of reconciliation, and have moved toward adopting a shared agenda for the sustainable development of the watershed.
- In Guatemala’s southwest, Indigenous Mayan peoples had long endured official contempt for their desire to manage the forests they occupy — a mindset that led to injustices and tension. In response, the C&C partner hosted a series of participatory encounters between traditional leaders and Guatemala’s environmental regulators. These workshops helped enlighten the public authorities about

An important goal of the C&C program was to involve the interest groups themselves in the investigation process.

RESEARCH THAT MATTERS



IDRC: Denis Marchand

Indigenous attitudes toward the environment, and led to the creation of the Indigenous Peoples and Civil Society Coordination Unit, which recognizes in law the resource rights of these people.

- And on the coast of Chile, just south of Valparaiso, a fishing village and a privately owned tourist resort competed for access to drinking water. The C&C partner brought together the contending parties with local water administrators in workshops designed to share viewpoints and build trust. As a result of these meetings, the local community obtained the legal rights to the water that they had demanded — a solution that addresses the need for economic growth, environmental sustainability, and social equity.

Overall, the program's findings may challenge some people's notions about how power is wielded. The strong and the weak don't always behave as expected. For example, in a world region where many countries are still coming to terms with the legacy of authoritarian governments, state agencies now tend to favour collaborative approaches. The reason? Governments wish to settle the immediate issues without having to confront their root causes — such as unequal power relations. On the other hand, some NGOs tend to rely in the first instance on adversarial strategies — public protests and street marches, for example — as a way of provoking the dialogue that eventually leads to collaboration.

Future Challenges: Bringing everyone to the table

The C&C program highlighted some larger research issues that still need to be addressed.

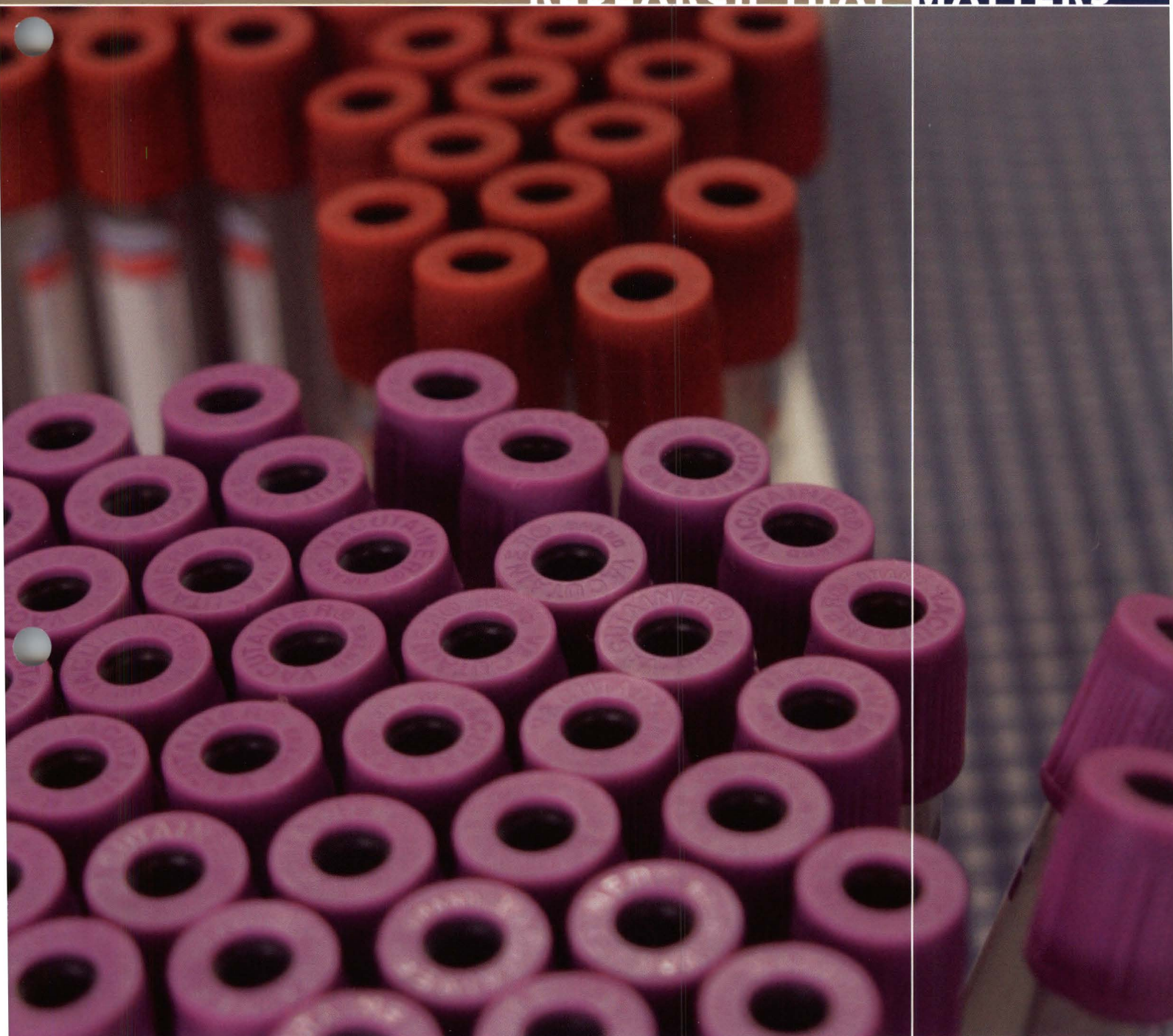
Even though techniques such as negotiation, mediation, and so forth will continue to play a role in conflict resolution, clearly another important path will be addressing social inequalities and empowering the weaker players. The best collaborative methods can achieve little if the most vulnerable parties are barred from the table simply because they lack the knowledge or the capacity to contribute effectively.

And while most of these socio-environmental conflicts appear at first glance to be essentially local, often they can be shown to be framed within globalized processes. Too frequently, the “institutionalization of inequity” — for example in unfair trade agreements — is at the root of injustice and environmental damage. Future investigation into these local conflicts will need to look at a wider range of national and institutional actors.

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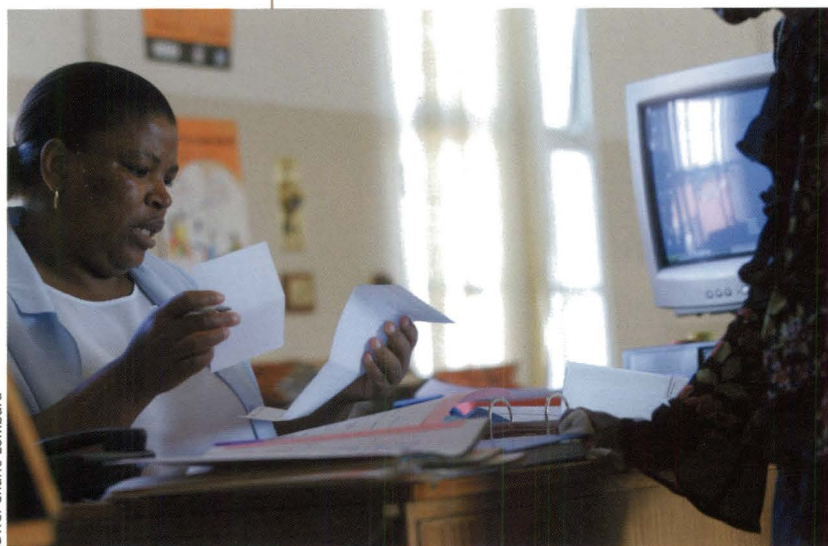
Fighting AIDS with evidence

How can you get AIDS treatment to those who urgently need it where medical expertise is scarce, patient information is fragmented, and the public is wary of testing? IDRC-supported research teams are working with public health authorities in South Africa's Free State province to design a rollout of antiretroviral therapy that will strengthen the public health system.

"We feel we are going to go far compared to other provinces. We have a broader picture of the challenges."

— Portia Shai-Mhatu,
Senior Manager,
Free State Department
of Health

RESEARCH THAT MATTERS



A data-entry worker logs the file number of a patient enrolled in the province's ART program.

slums that ring South Africa's cities. This leaves the poorest and most AIDS-affected populations with limited access to transportation to treatment sites.

For years, the population has received mixed messages on the seriousness and causes of the epidemic. Many are sceptical of "Western" treatment therapies, including ART. Traditional healers and remedies are seen by many as more accessible, affordable, and reliable than doctors and nurses. And there are concerns in the medical community that some traditional remedies interact negatively with ART.

The Development Challenge: Ensure quality treatment for all who need care

In 2002, an estimated 487 000¹ of Free State province's 3 million inhabitants were HIV infected. In late 2003, the Government of South Africa introduced a national strategy for the comprehensive care, management, and treatment of HIV and AIDS (CCMT). That year, the Free State Department of Health estimated that some 31 000 people province-wide would be eligible for treatment with antiretroviral therapy (ART).

Though rich in comparison with many of its neighbours, South Africa's public health system faces too many competing demands, with too few resources. Doctors, pharmacists, and nurses trained to diagnose and treat HIV/AIDS are in short supply. Many of the best qualified find higher-paying positions in wealthy countries.

In South Africa's health system, basic information on patients' health status and treatment history is not routinely captured in the form of patient profiles. This poses risks for a wide scale rollout of ART, which entails a demanding and complex treatment regime. If poorly implemented, the rollout could increase the risk of drug resistance.

The post-apartheid landscape of South Africa also sees vast numbers of the black majority living in outlying rural areas or the semi-urban

The Idea: A treatment model informed by research

Early on, the Free State Department of Health decided to approach its ART rollout with careful monitoring and feedback. The aim was to ensure that the delivery of ART would strengthen, rather than overwhelm, the province's health system and its users.

Since early 2004, Canada's International Development Research Centre (IDRC) has supported a number of research teams collaborating with health department officials to scale up AIDS treatment in the province. This twinning of researchers and research users has seen innovations emerge in the areas of nurse training and support, the use of information technologies for patient monitoring, and community outreach. It also provides a steady flow of feedback — sometimes critical — so that the department can constantly refine its approaches based on evidence.

The Research: A "moving picture" of the rollout to shape better choices

Snapshot 1:

In districts across the Free State, patients, nurses, and community health workers are asked a battery of questions on their experiences with the CCMT program: Are patients following their treatment regime? How are

¹ Actuarial Society of South Africa.

nurses and other health workers coping with their workload? What effects do they see treatment having on patients?

Researchers with the University of the Free State Centre for Health Systems Research and Development harvest the information from these regular surveys to develop a baseline picture and subsequent reports on how the model of care is seen by those providing and accessing health services. They also carry out appraisals of ART health facilities to verify such things as whether treatment sites have refrigerators for storing medication, whether clinics have space to counsel clients in private, and whether nutrition supplements are available to patients.

Snapshot 2:

Behind the reception counter, a data-entry worker logs the file number of a patient enrolled in the province's ART program. She opens a profile displaying a care and treatment history dating back to the patient's original HIV-positive blood test. The clerk adds new information provided by a nurse who has just done the latest assessment.

Using a standardized input form, this electronic data capture feeds a warehouse of information on the first two years of the Free State ART rollout, replacing an unreliable patchwork of hard copy records that would have been lost to analysis. Developed and tested by the University of Cape Town (UCT) Lung Institute and South Africa's Medical Research Council, this integrated database now works hand in hand with the Free State Department of Health Meditech computerized record system to monitor patient progress and the overall rollout in a number of critical areas.

Snapshot 3:

In a community health clinic, a nurse examines a patient who has been coughing steadily for several weeks, has a high fever and a rash that won't heal. The nurse consults a set of guidelines, illustrated with graphic images of HIV/AIDS and tuberculosis (TB) symptoms, and finds concise instructions on what to test for. These guidelines go together with onsite training the nurse and fellow health workers have received, in a program called PALS Plus (Practical Approach to Lung Health in South Africa), developed by the University of Cape Town Lung Institute's Knowledge Translation Unit.

Integrating primary care training in TB and AIDS makes enormous sense in Free State. In some areas, as many as 80 to 90 percent of those with TB are also HIV infected.

Snapshot 4:

As a young man struggles to answer questions about antiretroviral therapy and its use, it becomes clear he knows little about HIV/AIDS, though nearly one in three of his neighbours may be infected with the virus.

In 2004, the research organization CIET Africa surveyed 4 444 people in Free State province and interviewed health workers in 67 facilities, to clarify what people knew and believed about AIDS and ART. The surveys revealed a need for frank and simple information to be available through community media to address widespread ignorance on what can cause or treat HIV/AIDS.

The Impact: An open and responsive ART strategy

Putting research at the heart of its decision-making process from the beginning has given the Free State rollout a level of transparency and responsiveness almost unprecedented in public health circles. According to Ron Chapman, executive manager for Health Support Services at the province's Department of Health, researchers provide "unbiased, honest answers to questions that need answering. With research going hand in hand with implementation, we know very quickly when something is not working and we can change tack almost immediately."

Having a state-of-the-art information management system also gives the department a clear picture of the effectiveness of its rollout model, and allows it to report publicly on overall progress. Free State was the first South African province to have a patient profiling system. This lets frontline health workers access, use, and build on patient records as they progress through treatment. Over time, this tracking may provide valuable input into global efforts to track the evolution of HIV/AIDS and drug resistance to ART.

PALS Plus training is helping strengthen the role of nurses in the ART program. As of early 2006, randomized trials had shown dramatic improvements in diagnosis among those



Health officials acknowledge that the program as yet has limited reach.



PALS Plus training is helping strengthen the role of nurses in the ART program.

IDRC: Charlé Lombard

IDRC: Charlé Lombard

RESEARCH THAT MATTERS



Lara Fairall,
Head UCT Lung Institute

trained in the system. TB detection among patients seen by PALSA-trained nurses went up 68 percent, while the numbers of TB patients undergoing voluntary testing for HIV increased by 110 percent. In October 2005, South Africa's National Department of Health approached the PALSA Plus team to explore whether the approach could be scaled up for national implementation.

Health workers are gratified to be making a difference for HIV-positive patients, where before they had little to offer. But they also report stress and burnout from the increased workload, and many dip into their own pockets to help patients buy food and pay for transportation.

Future Challenges:

Extend the reach of the program

Surveys of patients in the treatment program show that, by and large, they are happy with the care and support they are receiving. Yet many also report struggling to stay with the program because treatment centres are too far, and transport limited, or because they have no food to go with their medication. Such findings underscore the need to bring treatment sites closer to affected communities, and address the poverty that many HIV/AIDS patients face.

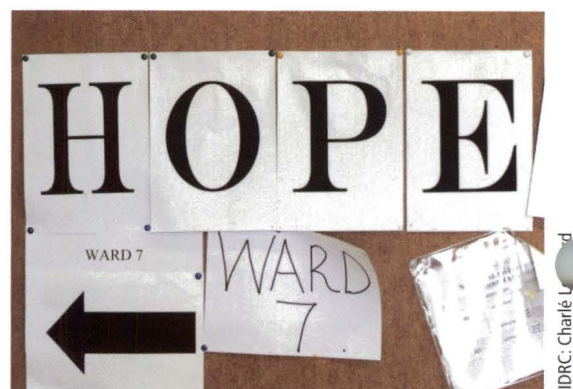
Health officials acknowledge that the program as yet has limited reach. At the end of 2005, 18 380 people were registered in the province's CCMT program, with only 2 929 on ART.

A key barrier is the small number of sites accredited to treat AIDS. Free State began with a model where doctor-led treatment sites were fed by nurse-driven assessment sites from the surrounding area. Because of the shortage of doctors and specialists, the province is now considering shifting more responsibility for treatment to nurses.

"Nurse-initiated ART has enormous potential as an accelerator," says Lara Fairall, Head of the UCT Lung Institute Knowledge Translation Unit. "The first step is to demonstrate nurses can provide the services."

Meanwhile, University of the Free State surveys show that the rollout is not yet reaching "the poorest of the poor." Given earlier CIET findings that only a third of those interviewed believed that ART could help someone with AIDS, health authorities face an uphill battle to convince people to seek testing and treatment.

For now, the struggle is to ensure services are there when they come.



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Cape Town to Cairo: Connecting Africa

IDRC-supported research helps unleash the potential of Very Small Aperture
Terminal networks, the new generation of satellite-based technologies.

"Bandwidth is the life-blood of
the world's knowledge economy,
but it is scarcest where it is most
needed — in the developing
nations of Africa."

— Mike Jensen, communications
consultant

RESEARCH THAT MATTERS

"ICTs, which are now universally pervasive, are no respecters of boundaries. Working on a regional basis is therefore no longer an option, but an imperative for development."

– Jan Mutai, former Secretary General, African Telecommunications Union

The Development Challenge: Kick-starting Africa's digital revolution

Few will deny that Africa remains the poorest continent. The 2006 report on the United Nation's Millennium Development Goals (MDGs) states that 44% of Africans live on less than US\$1 a day — by far the highest percentage of any world region.

But there is hope. That same MDG report details the dramatic advances achieved in other world regions during recent decades. In parts of Asia, for instance, the ambitious targets for poverty reduction that the United Nations sought to achieve by the year 2015 have already been exceeded.

One reason for this Asian success has been the rapid spread of low-cost telephone and Internet service. Improved access to these information and communication technologies (ICTs) clearly gives people a better chance of pulling themselves out of hunger and destitution. Modern networking tools supply farmers with market information, entrepreneurs with access to microcredit, doctors with disease surveillance or diagnostic advice, community groups with links to disaster relief, and students with a whole world of knowledge.

For many rural or poor Africans, however, using a computer or even a telephone remains a dream. Akossi Akossi, Secretary General of the African Telecommunications Union, describes the lack of ICT infrastructure throughout the continent as "cruel." Several factors are to blame.

High costs plus the shortage of investment capital have limited the construction of the right kind of infrastructure, whether it be the fibre optic and microwave "backbones" that link the country with national and international transmission capacity (bandwidth), or the fixed wire and wireless networks that link the end users — the so-called "last mile" of connectivity.

Part of the reason for this obstacle has been the burden of government oversight. Many of Africa's 54 countries still cling to a bewildering array of national policy regimes and restrictive telecom regulations. These often-incompatible systems also hinder the cross-border harmonization of licensing rules, thereby frustrating the economies of scale that are needed to make such large projects affordable. For example, the

non-profit African Virtual University offers satellite-based distance learning, but has faced huge hurdles in obtaining licences from more than two dozen governments.

A telling irony is that one of Africa's poorest territories, the unrecognized de facto state of Somaliland, hosts the continent's least expensive and most widely accessible telephone service. The country simply hasn't had the means to draft the straitjacket of licensing and levies that stifle the telecommunications sector elsewhere. In destitute Somaliland, ICTs thrive.

The Idea: Blue sky thinking

Somaliland can provide cheap and accessible ICT services for another reason: its small telecommunications sector relies heavily on satellites. Because these sky stations broadcast a wide footprint of low-cost and reliable signals, they offer a good model for linking a continent that suffers from insufficient terrestrial infrastructure. Satellites can connect "the last 1 000 miles."

The key to the affordability of these systems is higher powered satellites combined with the new generation of small but powerful ground stations. A Very Small Aperture Terminal (VSAT) typically measures less than 2.5 metres in diameter, and nowadays can be one-tenth the price of the more cumbersome receiving and transmitting equipment of the past.

A small sample of potential satellite applications for Africa:

- Internet
- Email
- Distance learning
- Rural telecommunications
- Telemedicine and medical data transfer
- Disaster relief
- Videoconferencing
- Intergovernmental communications
- Maritime services
- News gathering and distribution
- Video monitoring
- Bank transactions and ATM services
- Tourism reservation systems
- Point-of-sale electronic funds transfer
- Real-time market information
- Sales monitoring and stock control
- Information to highway drivers

Despite its small size, a VSAT can carry Internet, data, voice, fax, and video signals.

With VSAT, virtually any entrepreneur, small business, public institution, or individual (by way of a rural cyber café or telecentre) can immediately connect to the Internet or make a phone call — no matter how far they may be from fixed lines. VSAT can level the playing field by allowing everyone everywhere to benefit from similar levels of service.

VSAT offers one promising solution to the technical difficulties of reaching Africa's far-flung districts. But what is the answer to the administrative bottleneck caused by onerous regulation? How can this fragmented maze of rules and fees be minimized so that VSATs will be free to flourish?

The Research: Learning and advocacy

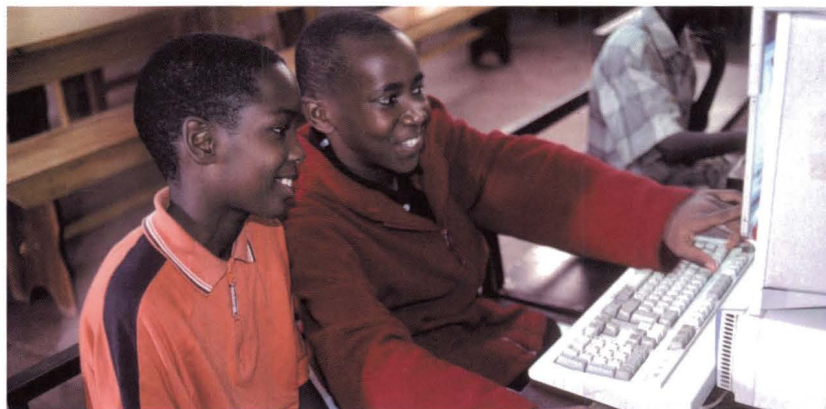
Between 2003 and 2006, Canada's International Development Research Centre (IDRC) joined forces with the British government's CATIA (Catalysing Access to ICTs in Africa) initiative to support research and advocacy on VSAT regulation by the industry association, the Global VSAT Forum (GVF).

The project set itself two tasks: to better understand the shortcomings of the current regulatory regime, then to press for reform of that regime.

The project's research team set out to clarify the current role of VSATs, particularly as they may help improve standards of health, education, and business in Africa, and their potential for improving these standards in future. It sent a detailed questionnaire to every African government, and quizzed global telecommunications organizations, regional industry associations in Africa, other non-governmental organizations, private sector consultants, and legal experts.

The team researched and analyzed a wealth of topics: the existing regulatory and policy frameworks, including licensing and taxation issues; currently accessible bandwidth and patterns of usage; ownership of VSAT technology; the technical and human resources available for deploying VSAT; the costs of VSAT to institutions and individual users; and complementary technologies.

The process gathered substantial information from fully two-thirds of Africa's countries, and



IDRC: Peter Bennett

partial information from the remainder. These facts and figures supported a series of meetings, workshops, and training events held with telecom regulators across the continent. The data also stocked an online "one-stop shop" of regulatory information and license applications — a handy service that reduced the administrative burden on governments and made it easier for private sector VSAT enterprises to access this vital information.

On the Ground: Getting a clear picture

Early in the project's lifespan, the team consolidated its rich findings in a detailed and persuasive 73-page report, *Open and Closed Skies: Satellite Access in Africa*. This book, available both in print form and online, filled important gaps in research and analysis, and included a practical blueprint for action by governments wishing to harmonize their satellite regulations.

An innovative by-product of the report is IDRC's online Africa Satellite Atlas. This interactive web page allows users to view, among other details, the coverage footprints over Africa of specific satellites. With a click of the mouse, the complexity of providing signal access across wide areas is clearly illustrated, and in brilliant colour. The atlas confirms that, technically, nearly all of Africa could be served by VSATs. Says IDRC's Heloise Emdon, "People with little ICT background could look at the maps and understand the issues."

CATIA's advocacy component drew upon all this material as it set out to persuade a wide African audience of the need for ICT reform. It focused on the private sector, civil society, consumer groups, and the mass media, and sought to show members of these bodies how they

With VSAT, any entrepreneur, small business, public institution, or individual (by way of a rural cyber café or telecentre) can immediately connect to the Internet

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themselves can push for better telecommunications. CATIA recognized the importance of personal leadership, and took care to boost the number of ICT “champions,” especially among women.

The Impact: Loosening up the regulators

The early release of the research report was key to the success of the advocacy. CATIA’s Clare Sibthorpe explains: “The research provided the information and data required, and then the CATIA project ensured that these results were

disseminated and used by policymakers and regulators. The two projects together were able to achieve greater impact than if they had stood alone.”

And what was this greater impact? “Basically what the report did,” says Emdon, “was to come up with model legislation which has subsequently been adopted by three regional regulatory associations which together cover three-quarters of Africa.”

In many of these countries, reform has already unleashed changes in licensing regimes and, as the GVF’s David Hartshorn puts it, “a rapid proliferation of VSATs.” For example:

- CATIA activities have led to policy and regulatory reform — followed by greater diffusion of VSATs — in Kenya, Uganda, Tanzania, Ghana, Côte D’Ivoire, and Nigeria;
- during 2005 the VSAT operator Afsat, serving Kenya, Uganda, Tanzania, Ghana, and Nigeria, grew by 67%;
- the number of authorized VSAT data networks in Ghana grew from 96 in 2003 to 162 in 2005;
- dramatic reductions in VSAT licensing fees have happened in at least 15 countries, leading to an increased number of service providers;
- better access to the Internet through VSAT boosts the opportunities for Voice Over Internet Protocol (VoIP) systems, thus reducing the cost of international phone services where VoIP is allowed.

These policy changes have helped Africans join the global “knowledge society” and so achieve real improvements in their lives. Many people

now have cheaper and easier access to markets, business opportunities, credit, medical information, and distance learning. These links stimulate new wealth at the bottom of the economic pyramid, and so likely will have an early and dramatic influence on development.

Future Challenges: Solutions in sight

Although much has been achieved, much remains to be done.

So far, the coordination of regulation has happened regionally in East, West, and Southern Africa. Central and North Africa will be addressed once regional regulatory bodies are established in these areas. African reformers are encouraged by the European experience, where some 46 different national regulators function in relative harmony — to the benefit of satellite operators and consumers, and without jeopardizing national sovereignty. By learning from other world regions, African regulators hope to leapfrog to modern solutions.

Other challenges to widespread deployment of VSAT services are the shortage of trained local technicians to install and maintain thousands of terminals, the need to power this equipment from alternative electricity sources in remote rural areas, and the problem of collecting service fees from people in those areas. For all these obstacles, however, feasible solutions are in sight, and the sky may well be the limit.

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“The single most important obstacle slowing the provision of VSAT-based solutions is outdated regulation.”

— David Hartshorn, Global VSAT Forum, and Anina Selve, Gilat Satellite Networks Ltd.



IDRC: Peter Bennett

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Lateral Learning for Science Reporters

An IDRC-supported peer-to-peer mentoring program helps bring science journalists in the Middle East and Africa closer to the professional mainstream.

IDRC  CRDI

Canada 

"The way we see the world
shapes the way we treat it."
Geneticist and science
broadcaster David Suzuki

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The Development Challenge: Isolated journalists

"We've arranged a civilization in which most crucial elements profoundly depend on science and technology," wrote the American astronomer and science popularizer Carl Sagan. "We have also arranged things so that almost no one understands science and technology. This is a prescription for disaster."

Sagan's warning resonates today, as we witness growing doubt, anxiety, and discord in the general public surrounding scientific matters. Perhaps even more than scientists do, laypeople argue about issues like the cause of global warming, or worry about the safety of genetically modified organisms (GMOs) in food, or question the seriousness of the avian flu threat.

Ever since the Catholic Church persecuted Galileo for his heretical theories about the solar system, "objective" science has been fraught with social, religious, philosophical, ethical, and political implications, and has frequently been the focus of passionate public debate. Too often, however, these arguments are impaired by people's misunderstanding of the science that is at issue.

Now more than ever, when some warn that the very existence of life on our planet may be at risk — and others dismiss that view as being overly alarmist — the general public ought to be well informed about the science that underpins state policies.

Among the important sources of such information are the journalists whose beat is the world of science and technology. In most developed countries, science reporters are abundant and well respected. In most parts of the developing world, however, science reporters are rare and have little prestige. This is unfortunate because some of today's pressing scientific issues have profound implications for poorer and more vulnerable societies. Witness again climate change, GMOs, and avian flu, as well as malaria, HIV/AIDS, the loss of biodiversity, and other serious concerns.

In poor countries, science journalists frequently lack training, resources, and support. Often, they are deeply mistrusted by scientists and government officials — normally their key contacts. Their services are hardly needed in some countries, where science policy is decreed

by the state, or else is ignored altogether. And they may even feel disconnected from the science carried out in their own backyard, because research results are usually published first in overseas journals.

The fundamental problem suffered by these journalists, in other words, is their isolation.

The Idea: Peer-to-peer training

With support from Canada's International Development Research Centre (IDRC), Britain's Department for International Development, and the Swedish International Development Agency, the World Federation of Science Journalists (WFSJ) is making a good start on breaking down this isolation. The WFSJ aims to address at least one of the practical hurdles faced by these professionals in the Middle East and Africa: their low levels of training.

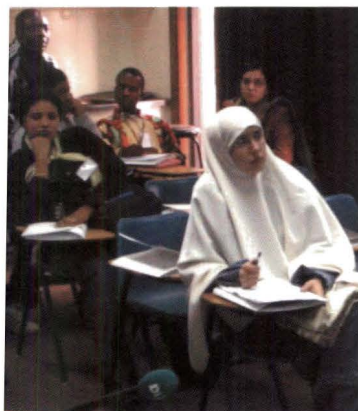
Seminars, workshops, courses, and field trips can all be effective ways to teach, but these measures are often one-time, usually expensive to conduct, and may offer little chance for instructors to give close attention to individual students. Instead — recognizing that "networking" is an effective tool in fostering communication for development — the WFSJ has engaged seasoned science journalists to share their knowledge and expertise with their less-experienced colleagues on a continuing, long-term basis.

Thanks to email and other modern links, science journalists anywhere can readily exchange regular messages for the purpose of "peer-to-peer mentoring." Now, novice professionals can easily learn from veterans in the trade the skills they will need to do their job well.

Capacity Building: From sources to styles, verbs to videos

And what are those skills? The mentoring program aims to build competence in just about every aspect of a science journalist's practice.

It teaches apprentice reporters how to approach the basic task of gathering facts. They learn about assembling an informal network of sources by building confidence with these contacts. They are taught to be "science-minded" and to use initiative in chasing down compelling stories. As Kenyan mentor Otulah Owuor says, "Journalists need skills to



Cover photo:
Armand Faye (hat) and
clockwise from his right:
Makeba Tchibozo (Benin),
Jérôme Bigirimana (Burundi)
and Aimable Twahirwa (Rwanda)

expand their sources of information and thus have sustainable story ideas.”

The program stresses the value of maintaining good relations with editors. Novice journalists are taught that they must first convince these gatekeepers that their science stories are in the public interest — especially when these stories are new and may require an investigatory approach — then satisfy the same editors by meeting deadlines with substantiated facts, clean copy, and punchy headlines.

The program reviews fundamental writing skills, such as how to simplify style and avoid jargon, “localize” a story, and educate and entertain the reader at the same time. The trainees learn how to translate scientific vocabulary into local languages, and even pick up tips on operating the specialized equipment needed for recording and transmitting audio and video files.

On the Ground: Learning by doing

The program runs until 2009. Its opening class comprises 60 budding science journalists from 35 countries in the Middle East and Africa, working in English, French, or Arabic. Each person has been matched with one of 16 more experienced professionals. The four-to-one ratio allows each mentor to devote plenty of attention to each learner.

Such close bonds are possible, despite the distances separating the individuals, thanks to modern communication technology. The program kicked off with telephone conversations in which people introduced themselves and agreed on the details of their affiliation. Subsequent links — to exchange drafts and feedback — are being conducted by way of the WFSJ’s private website.

The mentors are motivated by more than simple goodwill or the spirit of volunteerism. They are paid for their effort. They undergo rigorous training. And program coordinators closely monitor their performance.

Similarly, the mentored journalists are expected to strive for a high standard. They must produce for their employers articles and other professional materials on a regular basis, and share the drafts with their mentors.

The whole group first met face-to-face in November 2006, at a WFSJ workshop organized

alongside the Nairobi meeting of the United Nations (UN) Framework Convention on Climate Change. This short course allowed all participants to become better acquainted, but also gave them a splendid opportunity to polish their mentoring relationship while doing some actual reporting of a high-profile event.

During the workshop, each mentor sat down for a one-on-one chat with each assigned learner. Guest lectures offered advice on how to navigate the complexity of the UN conference and to identify the best stories. As well there were group discussions, field trips to research facilities and social events.

The workshop also test-launched the first two lessons of the WFSJ’s pioneering online course in science journalism. Its curriculum is specially adapted to the needs of reporters working in developing countries.

Since the Nairobi meeting, the participants have been writing, reading, advising, and learning. The mentored journalists have been uploading their drafts to the website, and the mentors have been responding. As well, the mentors have been passing along other useful information, such as suggestions about networking with other reporters, setting up journalists’ associations, or finding scholarships.

The Impact: By-lines, resources, connections

Although the project has been up and running just a short time, much has been achieved or is already in the works.

- Following the UN conference, journalists published articles about that event for news media in their home countries or abroad (including in *Nature*, one of the world’s most prestigious science journals). Stories are also being posted on IDRC’s website. The journalists have learned how to market their products to a variety of media, and are now getting published in more than one place.
- To complement its website, the WFSJ is gradually assembling a complete package of working materials. In the pipeline are booklets advising “how to mentor science journalists” and “how to set up and manage an association of science journalists.” Further lessons in the online course are being



“I hope the peer program will give me a chance to highlight important science issues in my own country, and at the same time help me develop an international outlook in the stories I write.”

Esther Nakkazi, reporter for
The EastAfrican newspaper

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"I think Arab science journalists have been isolated from their colleagues elsewhere for too long. This program will give them the opportunity to see what's out there in the world in terms of various forms of writing, topics to cover, and opportunities in the form of scholarships and training."

WFSJ coordinator
Nadia El-Awadi

prepared: the curriculum will ultimately expand to 12 lessons.

- Not only are individual science journalists becoming better connected, but so are their professional associations. In the Middle East and Africa, new national and regional groups are being formed and existing ones strengthened, while some have been twinned with more experienced bodies abroad (notably, in light of the current geopolitical climate, the Arab Association of Science Journalists has linked up with the US National Association of Science Writers). Thus the isolation is being broken at every level. As WFSJ Executive Director Jean-Marc Fleury puts it, "We're essentially creating a network. We're putting people in touch."
- Although the scheme delivers top-down instruction, at the same time it fosters the sharing of knowledge in the opposite direction. In particular, mentors from the developed world can learn from the experiences of their colleagues living in less-developed places. And mentors based in the region — who are the majority in this group — benefit from the two-year training-of-trainers course. Says Nadia El-Awadi, coordinator for the Middle East and North Africa, "Everybody stands to gain."

Future Challenges: Wider horizons

While the overall program is off to a brisk start, a few of its members remain frustrated by the hurdles associated with living in a developing region. Some journalists, for example, have no choice but to work from commercial Internet cafés that may lack the capacity to handle their large digital files. In some districts, basic research resources like cheap and reliable telephone service, libraries, and even dictionaries can be scarce.

Where possible, the WFSJ will work around these obstacles. It plans, for instance, to explore the use of the Skype "voice over Internet protocol" system to reduce the cost of telephone calls.

Participants continue to have opportunities to travel and meet colleagues. During spring 2007, for instance, a group of Arab journalists journeyed to Morocco to report on IDRC projects there, and the WFSJ holds its fifth world conference in Melbourne, co-hosted by the Australian Science Communicators.

A long-term goal for the program will be getting African and Middle Eastern science reporters to cover more local stories, and so better balance the flow of information between developed and developing regions.

Meanwhile the WFSJ looks forward to a second round of the mentoring program and aims to introduce the method in Latin America and Asia. Already other organizations are looking at replicating the WFSJ's approach.

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Roads to Knowledge

Governments seeking effective policies to support their development efforts often need to consult independent experts. The stories of three IDRC-funded research consortia that operate in varied environments demonstrate the range of fruitful approaches available for harnessing outside expertise.

"He who would do
great things should not
attempt them all alone."
Seneca the Younger

RESEARCH THAT MATTERS

The Development Challenge: Finding the right advice

Modern economies are complex engines, which makes modern statecraft a daunting enterprise. Once upon a time, politicians, backed perhaps by a few astute mandarins, could steer government purely on the basis of personal principle, ideological tilt, and the occasional nod toward private interests. Today, however, running a large economy without the continuing help of expert technical advice is unimaginable.

Most governments rely to some extent on well-educated outsiders to supply the independent and credible scientific knowledge needed to

underpin economic policy-making. As one might expect, poor countries frequently lack an indigenous reservoir of such technocratic support. But even the state bureaucracies of developed countries find it impossible to build

in-house all the capability that they need, and so must turn to experts based outside government.

Development agencies often provide resources for expatriate consultants, but a continuing reliance on external experts may inhibit the building of local capacity for those tasks. Furthermore, consultants often bear a tool box of tried-and-true methods and assumptions that may sidetrack the effort to understand the client's particular problems. Every country has its unique concerns, and one-size-fits-all solutions are at greater risk of failure.

The Idea: Local knowledge networks

Over the years, Canada's International Development Research Centre (IDRC) has fostered hundreds of knowledge networks to promote applied research in developing countries. Initially these alliances were an almost incidental by-product of IDRC's activities, but now the Centre intentionally cultivates them as engines of learning.

The core business of these groups — which go by varied labels like “consortium,” “association,” “partnership,” and so on — is research for development. They advance the cross-fertilization of ideas, publicize findings, influence government policy, and broaden the

capacity for doing research. The diversity of the organizations and individuals that constitute these forums makes them remarkably flexible collaborations. They are well equipped to tackle a range of economic problems.

It has made good sense, therefore, for IDRC to apply the networks model to challenging the shortage of indigenous economic policy expertise in the developing world. In the case of three high-level initiatives — in Southeast Asia, Latin America, and Africa — IDRC has provided patient and enduring support to path-breaking institutions. Each has responded by cultivating local research capacity in a way that addresses local needs.

The Impact: Foundation building in Vietnam

The Vietnam Economic Research Network (VERN) may be unusual among knowledge-building institutions in that it operates in an environment where arms-length analysis is a novelty. Not many years ago, all of Vietnam's public policy emerged from the country's one-party command structure, and the very notion of an independent consultancy was unimaginable. Compared with similar organizations in other developing countries, VERN and its predecessors started with a blank slate.

Thus, while it carries out the same kind of practical research and capacity-building functions as do similar consortia elsewhere, VERN's special role has been to provide direct advice to government decision-makers. This high-level input hastens the creation of the basic institutions of a modern industrialized society and at the same time builds local expertise to keep the economy growing.

It began in 1991, when Vietnam embarked upon a root-and-branch transformation, converting its economy from a centrally planned to a market-based system. This reform policy was called *Doi moi* (reconstruction). The ideological push for collectivization was abandoned and private enterprise encouraged, and the country began to look outward toward integration with regional and global economic institutions. As a result, during the past two decades Vietnam achieved rapid and broad-based growth and has significantly reduced poverty.

“VERN's important contribution is to launch a culture of reference and interaction back and forth between research and policy. VERN has kicked-started this process and is helping to sustain it.”

— Dang Nhu Van (Cam Ly), researcher and former Deputy Director, VERN



IDRC: Ramona Ramlochand

This radical transition was complicated, however, by the scarcity of personnel qualified to carry out evidence-based policy analysis. From the start, IDRC stepped in with support for a series of research networks designed to boost Vietnam's capabilities in this area. VERN is the most recent of these consortia. Launched in 2002, and funded by IDRC at least until 2009, VERN mobilizes a small number of research teams comprising leading Vietnamese scholars, including many younger academics and women.

VERN offers guidance and training in methodologies with the aim of creating a Vietnamese "community of researchers." In its applied studies, meanwhile, VERN assists the emergence of national institutions and governance structures which — while customary in other societies — are new to Vietnam. Its policy papers, provided upon government request, have helped the country complete key changes such as trade liberalization and banking reforms, integrate into the global economy, and establish a modern market and investment system. In the run-up to Vietnam's 2006 accession to membership in the World Trade Organization, for example, VERN addressed the policy tension between ensuring competitiveness while raising employment and reducing poverty.

Encouraged by its success, Vietnam aims to graduate from a low-income to a middle-income country by 2010. IDRC, meanwhile, hopes to extend the VERN concept to the subregional level, embracing Laos and Cambodia.

On the Ground: Enriching the debate in Peru

In Peru, the Economic and Social Research Consortium (Consortio de Investigación Económica y Social — CIES) emerged during the instability suffered by that country during the final decades of the 20th century.

Created in 1989 with support from IDRC and from the Canadian International Development Agency, it focused initially on economic questions and on sustaining research capacity in the face of the widespread exodus of professionals and academics. In 1999 its mandate was expanded to include social issues, and CIES began to devote increased attention to mobilizing research capacity in order to promote

public debate. Today the private umbrella group comprises over 30 Peruvian academic, research, and government institutions, and non-governmental organizations.

CIES and VERN have differences and similarities. CIES is much larger, and it brings together institutional rather than individual members. But both consortia are national in scope, both seek to carry out high quality, policy-relevant research, and both support the training and capacity building of researchers. The key similarity is that, like VERN, CIES has adapted its strategy to its context.

CIES operates in a pluralistic political culture and consequently it seeks to engage with both policy-makers and civil society generally. It takes the initiative in supporting research by its members, in disseminating results, and in launching public debate on topical issues.

CIES is large and broad-based enough to deflect any accusation of ideological bias: it embraces a wide swath of opinion from right to left. Its credibility allowed the organization to play an important non-partisan role in Peru's 2006 general elections. The Consortium commissioned think pieces on 10 crucial themes in public policy, including health, education, employment, competitiveness, social programs, and so on, and published these papers as a framework for electoral debate. In addition, the Consortium convened and widely publicized debates among the candidates.

From 1999 to 2005, CIES supported more than 300 research projects carried out by its members. Because of its efforts, CIES has dramatically raised public expectations in Peru about the level of future debate on economic policy issues.

Capacity Building: Supporting African voices

With help from IDRC and other donors, the African Economic Research Consortium (AERC) was launched in the 1980s to provide an African response to the onerous structural adjustment policies imposed by international financial institutions. Today, the non-profit Nairobi-based organization has become the premier African research body in the field of economics. It enjoys solid credibility and the ability to convene scholars and officials at high levels. And it confronts topical issues: within its general focus on poverty reduction and

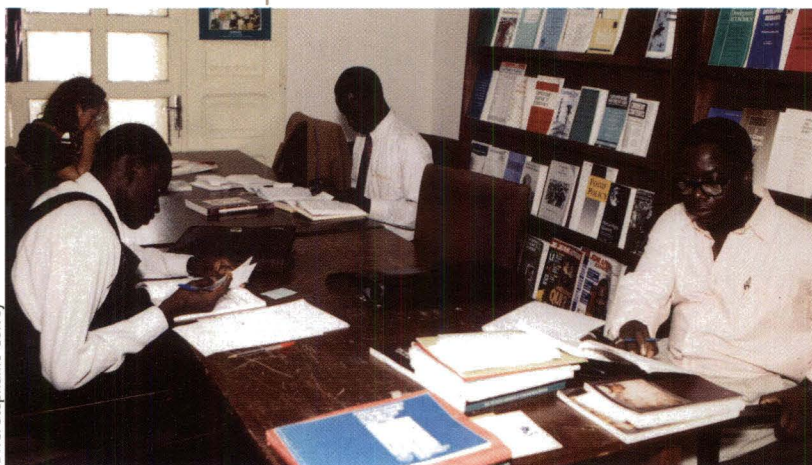


IDRC: Ramona Ramlochand

"When you have a country with a weak democracy, every debate becomes very partisan. CIES is trying to provide information that would allow policy-makers and public opinion makers to look at things in a more impartial way." Carlos Eduardo Aramburú, former Executive Director, CIES

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economic growth, AERC has recently been investigating the increasing role of the “Asian drivers” — China and India — in the economy of sub-Saharan Africa.

Like the other two consortia, AERC supports a program of policy-oriented research activities, dissemination of findings, and networking. AERC differs from the others, however, in significant ways. It is continental rather than national in scope. It enjoys a broad base of financial support, with contributions from 12 international donor agencies, including IDRC. And to a greater degree than the other organizations, it concentrates on building individual capacities.

AERC's support for graduate studies in economics aims to nurture the next generation of African academics and policy advisors. The organization runs collaborative M.A. and Ph.D. programs, drawing networks of students and universities from across the continent to share instructors, curricula, and resources. Thanks to these courses, African students no longer need to travel abroad to complete their degrees, and Africa's brain drain is stemmed because the professional opportunities for teaching staff have been widened. The hundreds of alumni of these programs now form a cadre of influential economists in policy-making institutions, the private sector, and academia. Among prominent AERC graduates, for instance, are Charles Soludo, Governor of the Central Bank of Nigeria, and Njuguna S. Ndung'u, Governor of the Central Bank of Kenya (who was also a program officer in IDRC's Nairobi office).

At a time when some have been questioning the value of providing foreign aid to Africa, AERC stands as a remarkable success story. The consortium continues to grow while sustaining a high level of local involvement. Its publications, workshops, seminars, and conferences form the cutting edge of policy-formation in Africa. And its success is reflected in AERC's use as a model for the establishment of similar research networks in other world regions.

Future Challenges: Adapt and persevere

Although these are just three of many knowledge networks that IDRC has funded, their experiences yield valuable lessons.

First, there is no single way of supporting policy-relevant research that works in all circumstances. In each of these cases, the institution adapted its structure and approach to the problems unique to its context, and in every instance the results have been positive.

Second, it pays to be patient. Each of these initiatives has been supported by IDRC and others for many years, and in the end the investment has been rewarded. Each project has prospered and provided substantial benefits to its home economy.

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